

**W**  
**600**  
**D916s**  
**1827**









Feb 20 - 1863 - 10 a.m. - 1000 ft.  
Tall, slender, slender  
tree - trunk upright & straight  
but with a few small  
branches, which are  
widely scattered & irregularly  
placed, giving it a top-spherical shape.  
Leaves thin, pointed lanceolate with  
sharp - well spaced, & extending  
in an irregular fashion on the surface. -  
The smaller ones opposite on the sides -  
the larger ones opposite between them.

Opposite the Corolla - numerous & fine  
and very pale pink - about 3 in.  
are placed in erect whorls - 4 to  
5 in number at each place - The last  
whorl is the largest - It is now fully  
open & shows 5 petals

All petals -

leaves -

## Ex-Corr.

about 10 in. long - 1000 ft.  
The petals pink & white  
in color - The upper two  
petals joined together in a cleft  
about 1/2 in. deep (the lower pair  
blown off). The upper larger  
petal is divided into 5 lobes

8



S. Garrison: Thomas  
Battinow.

Feb. 6th 1838



SYLLABUS

OF THE

LECTURES ON

# MEDICAL JURISPRUDENCE

AND ON

THE TREATMENT OF

POISONING & SUSPENDED ANIMATION,

DELIVERED IN THE

UNIVERSITY OF VIRGINIA,

---

BY PROFESSOR DUNGLISON.

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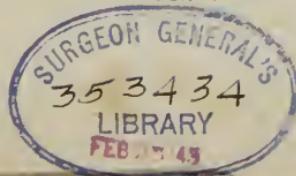
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UNIVERSITY OF VIRGINIA:

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1827.

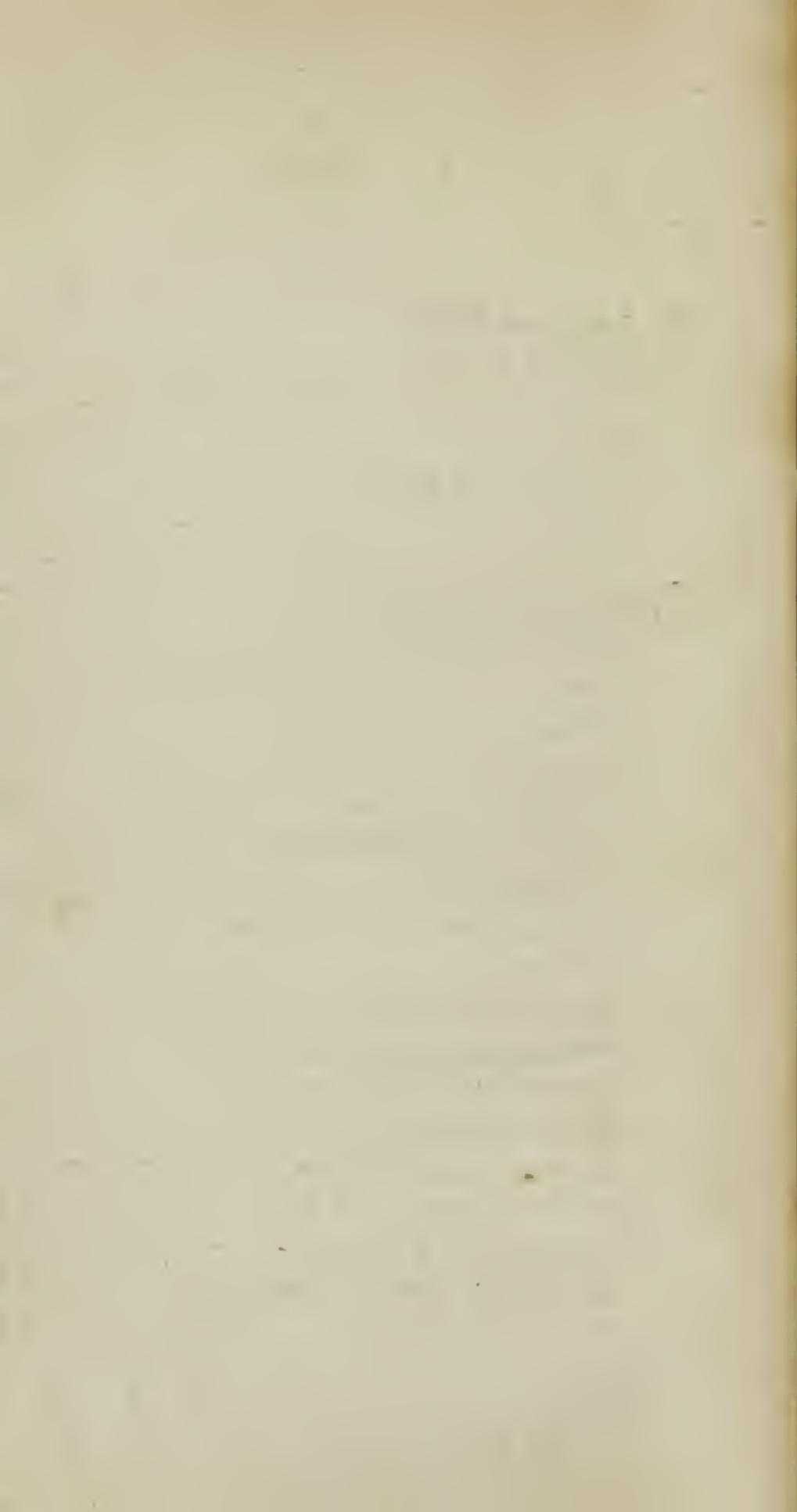


W  
600  
D9165  
1827

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## SYLLABUS, &c.

1. FORENSIC, LEGAL, JUDICIARY OR JURIDICAL MEDICINE understood to imply the use made of medical knowledge in Courts of Justice.
2. Introductory observations—Works on this subject recommended—SMITH, BECK, COOPER, FODERE, ORFILA, &c. &c.—Remarks—Smith's arrangement followed—Remarks.

### QUESTIONS RELATING TO THE EXTINCTION OF LIFE.

#### *Of death in the healthy state.*

3. *Sudden death* occurring without any precur-sory signs of a deviation from the healthy state.
  1. *Of apparent death.*
  4. *Numerous* stories of this kind on record and fearful consequences reported to have ensued. These consequences; *first*, the cessation of the proper aids and attentions required by the subjects of debilitating maladies. *Secondly*, the precipitate application of the scalpel. *Thirdly*, the interment of a person yet alive.
  5. With respect to the *first* of these, but little cause for apprehension—semblance of death

sometimes strong and yet recovery has subsequently taken place—Cases related.

6. *Second* consequence to be dreaded—the precipitate application of the scalpel; 1. for the purpose of extracting a child from the uterus of its supposed dead mother: 2. of ascertaining the cause of the death of the patient: 3. for the purposes of the anatomical school—cases related.

7. The *third* consequence or premature interment—much pains taken to throw this occurrence into discredit—cases have nevertheless occurred—practice in this respect amongst various nations.

#### *Of the signs and discrimination of Death.*

8. *Manifestations* of the existence of vitality—temporary intermission of activity to be distinguished from its total extinction—importance of knowing when this extinction has taken place—generally not very difficult. Life may exist without the actual exertion of all the functions—the natural functions may be long inactive without destroying life—the animal functions regularly interrupted during sleep and frequently deranged by disease whilst life goes on with little or no declension of vigour—when the vital functions cease, life is extinct. Respiration and circulation—the interruption of one promptly followed by that of the other, death being the speedy consequence. During life the functions kept

up by certain impulses—after death decomposition takes place and no part of the original body remains. *When putrefaction occurs no chance of reanimation*—other signs, however, short of putrefaction satisfactory proofs of death.

9. *Dead body* characterised by want of voluntary and involuntary motion—insensibility to stimuli: coldness—paleness—fixed state of the eye—contraction of the features—rigidity of the limbs—relaxation of the sphincter muscles, &c. These various signs canvassed—most of these phenomena may be combined and the subject be still living.

10. *Means employed* to test the reality of death: Light flocculent bodies placed at the nostrils or on the lips—a candle applied to the outlets of the breath—a vessel containing water placed on the breast, the agitation of which has been esteemed a mark of the existence of respiration—all these tests to be rejected—surgical tests recommended—as pricking the skin—blistering—the actual cautery, moxa, &c.—sanctionable where deceit may be suspected, but otherwise unwarrantable—Making an incision between two ribs in the left side and passing the finger to the heart in search of pulsation! recommended by M. M. FOUBERT and FODERÉ—Dr. PARIS's opinion that respiration, however slow and feeble it may have become by disease, must always be perceptible provided the naked breast and belly

be exposed, considered too sanguine—*Facies Hippocratica* an equivocal sign—opinions of LOUIS and others on this subject quoted. Last resource in these investigations the manifestation of the putrefactive process—important however to avoid the experiment—the delay not usually necessary—effect produced on the contractility of the muscular fibre by Galvanism—Its effect on man and animals—case of Clydesdale as related by Dr. URE—mere muscular contraction on the application of certain agents by no means an evidence that resuscitation is always practicable.

*Of states of the living body that may resemble death.*

11. *Asphyxia* or suspended animation, most closely allied to death—probability of resuscitation determined upon simple grounds—generally easy to learn either by the circumstances in which the body has been found or the history of the event to what noxious cause it has been exposed: whether to an irrespirable atmosphere, to water, to mechanical pressure on the windpipe, &c.—important also to know how long it has remained under the influence of these causes. Real nature of the case, however, to be attempted to be discovered in the body itself, in the absence of casual assistance.

12. *No satisfactory account of symptoms*, generally applicable, can be given: The following

may be met with—surface of the body cold, warm, pallid, or not—countenance unusually livid, or red, or pale, according to circumstances—tongue frequently pushed out—eyes often protruded in strangulation and suffused with blood—pupils commonly dilated, insensible to the strongest light—hands clenched—excretory evacuations—the ratio moriendi considered in another place.

13. *Unless from the extent of violence or the presence of putrefaction, the lapse of hours since exposure to noxious influence not sufficient to bar the resuscitating process—want of immediate success not to warrant its discontinuance.*

14. *The only satisfactory means of discriminating between Asphyxia and absolute death is the result of the proper application of approved means of recovery.*

15. *Instances of apparent death sometimes in the sick chamber where the difficulty of discrimination is consequently increased—cases related.*

16. *Syncope or fainting—characterised by paleness and insensibility with impeded circulation and respiration—frequently persisting for a considerable time notwithstanding the diligent application of remedies—remarks--exciting causes very numerous and resident in the nervous system, acted upon through the mind.—remarks on syncope: previous state of the individual to be*

enquired into—whether he laboured under any organic affection or had been subject to fainting, &c.

17. *Apoplexy, Catalepsy, Hysteria, &c.* sometimes mistaken for death—proper examination sufficient to decide whether the vital principle be extinct.

18. *In some diseases* attended with great exhaustion, there is often great difficulty in discriminating; hence in times of public sickness the living have been mingled with the dead—these mistakes more likely to occur in warm climates where speedy interment is necessary—cases of precipitate interment alluded to.

19. *Trance*—popular notions on this subject very extravagant—remarks.

20. *Simulation of death* by the administration of drugs a mere romance.

21. *Case of the Honorable Colonel TOWNSHEND* related—remarks.

22. *Forensic enquiry* may be called for should any of the three consequences, above mentioned, take place—a practitioner may be indicted for neglecting a sick patient prematurely—but little difference between withholding remedies where there is a chance of success and administering what is hurtful—the second and third consequences in this point of view require no comment.

23. *Reality of death* sometimes matter of legal enquiry—in questions of survivorship for exam-

ple—cases of imposture also frequent—remarks.

24. *The duty of the practitioner* is simple—to carefully examine the supposed corpse and acquire all possible knowledge of the event and circumstances connected with it—not to be guided by clamour, but to examine carefully and decide judiciously.

*Of sudden death without question of criminal agency.*

25. *Remarks*—of sudden death from intrinsic or morbid causes.

26. *Remarks*—necessity of an acquaintance with physiological as well as pathological anatomy to give a correct opinion of the cause of death.

27. *Dissection* should be made in every case of sudden death—remarks.

28. *Observations* on the immediate cause of death—on certain questions that may arise as to the cause of death.

29. *Apoplexy* characterised by mental and corporeal torpitude with stertorous sleep—where the attack is perceived, justiciary interference scarcely ever necessary—may however terminate fatally in situations where the event has not been observed—rationale of the disease—on *dissection* a turgid state of the vessels of the brain to be expected, or extravasations into its cavities or substance—*causes* of this formidable disease to be borne in mind—the make of the

body—known habits of the individual, &c. In those of the apoplectic make certain things known to be dangerous, which, in others, might not even be inconvenient—to wit, postures with the head low—tight clothes, especially about the neck—excess in eating or drinking—danger of which is increased by the recumbent posture, &c.

30. *Epilepsy* or the falling sickness—characterised by general muscular agitation, without sensation or consciousness and recurring at irregular periods—remarks—leads to sudden death by injury done to some important organ or by exposing the body, whilst in the paroxysm, to fatal agency.

31. *Sudden death* occasioned by a variety of other causes, some of which altogether unappreciable by any signs or symptoms during life—of these some are of a chronic, others of an acute nature.

32. *Aneurism* of the heart, or aorta, or ossification of these or other vessels—rupture of the heart—softening of the heart—inflammation of the heart, stomach or brain, especially of a rheumatic or gouty character—violent emotions of the mind, as excessive joy, fear or grief, &c.—remarks on these, as causes of sudden death—cases related.

### *Of sudden death by external influence.*

33. *This division* includes death by the inter-

ference of agents still unconnected with crime--as by lightning--exposure to noxious gases--to cold and hunger--the immoderate use of spirituous liquors--the imprudent swallowing of cold water--a coup de soleil, &c.--remarks.

34. *Danger from lightning* heightened by taking shelter under a tree--cases however of death by lightning at a distance from elevated objects.

35. *Danger of burning charcoal* where ventilation is impeded--of sleeping on lime-kilns--going rashly into mines, cellars, wells, brewers' vessels, &c.

36. *Danger from exposure to cold*, generally owing to misfortune and connected with exhaustion from hunger and fatigue--cases related.

37. *Death from drinking cold water* when the system is under great excitement from exercise--remarks--some probability that death has as much reference to the quantity as to the temperature of the water taken--cases related.

38. *Death from intoxication*--remarks. The appearances in the body--the history of the case--and the presence of the fluid sufficient to guard against erroneous conclusions.

39. *Spontaneous combustion* of the human body--cases related--remarks--reported to have chiefly occurred in those who had been addicted to drinking spirituous liquors--who were old and fat, and, generally of the female sex--the

<sup>B</sup>  
Dr. D. here remarked that the ~~danger~~  
injurious to by the counter-stroke, as it  
is called. gave the following--

occurrence perhaps doubtful; but assuming it for a fact, it may be important to establish it in a court of justice--there have been cases of murder in which attempts were subsequently made to burn the body to escape detection--(case related) and where such an accusation is made it might be urged that the body was burnt in manner unknown.

40. *Forensic application*--on the formalities of courts of inquiry--Coroner's inquest.

41. *Points of duty* devolving on the medical practitioner--necessity for his proceeding with caution and intelligence, as he may inculpate the innocent, prevent justice--injure his own reputation, &c.

42. *When called* to a person found lying dead--if the body cannot conveniently remain where discovered until an inquest can be held, an accurate examination to be made into every appearance connected with it on discovery. It will be important to mark the spot of ground, the situation of objects and the posture of the body when found--to examine the whole surface of the corpse as well to discover wounds or bruises as to detect improper tightness, pressure or other impediment to the circulation--wounds must be carefully and anatomically traced--if bruises or marks of violence exist, the parts beneath must be dissected--all the cavities of the body must be then examined--remarks--if, on

opening the head, turgescence be found in the vessels—haemorrhage accompanying the knife—blood extravasated—adhesion between the membranes—great vascularity in them, &c.—death may be presumed to have arisen from apoplexy; a presumption which will be corroborated if in the stomach signs of repletion be observed, or if the deceased be of a make favourable to determination of blood to the head—a person may be seized with apoplexy in a place where there are hard or sharp objects on which he falls, and extensive wounds, with loss of blood, may be the consequence—dissection will shew that death has not been the consequence of external violence—or, he may fall in the apoplectic state into water and be taken out dead—in such a case the signs of apoplexy will probably be manifest—the nature of the place where found, the appearance of the ground--previous state of the deceased's mind, health, &c. to be also taken into account—A person again may fall from a height in an apoplectic fit and fracture his scull—three questions may here arise : 1. Has the deceased accidentally come by his death in this way ? 2. Has he sought it of his own accord ? 3. Has he been precipitated by other agency ? Previous history, appearances on dissection, &c. must here be considered.

43. *When the cause of death is seated in the heart or great vessels, the appearances generally*

very satisfactory—were the heart more frequently examined a satisfactory cause of sudden death would probably be more frequently discovered—cases related.

44. *Where death has occurred from sudden affection of the stomach, the appearances may or may not be satisfactory—perforation, as well as great vascularity, of the stomach sometimes occasioned by the gastric juice after death—cases and experiments related.*

45. *In death by lightning clothes sometimes consumed and metallic substances melted. Appearances on dissection by no means satisfactory—cases related—history of the event to be generally presumed from the situation in which the body is found, and the knowledge that a thunder storm has taken place.*

46. *In cases of the non-respirable gases, when the body is found, the circumstances as to noxious influence may be wholly changed, as the gas may have escaped—evidence of what has occurred to be perhaps sufficiently discovered from the state in which objects are found—remarks—eyes of those who have died in this manner generally found wide open and protruded—tongue thrust out at one side of the mouth—jaw clenched—face livid, &c.—on dissection, congestion of blood in the right side of the heart and in the veins leading to those cavities—where no other cause of suffocation demonstra-*

ble there is perhaps proof sufficient, when added to the history of the event, to decide on the mode of death.

47. *The investigation* of cases of death from cold and hunger depends more upon their history than on the appearances to be met with on dissection—it should, however, be ascertained whether any deleterious ingesta have been made use of, as well as whether there be any traces of organic derangement and of morbid action—if none be found the probability of the cause mentioned will be strengthened. They who perish in this manner generally belong to the wretched classes of society—marks of privation may therefore be looked for in the exhausted state of the stomach and intestines, as well as in the general emaciation of the body and miserable state of the clothes—remarks. Persons who die from exposure to cold in the open air not unfrequently brought to it by excessive drinking—remarks—discovery in such cases of a quantity of spirituous fluid in the viscera, recognisable by the smell, will account for death—remarks.

48. *In death from the ingestion of cold water* when heated no morbid appearances to be expected on dissection—the sole evidence will be the history of the case—remarks.

49. *Detection of intoxication* as a cause of death, but rarely difficult—in most cases the individual carried off by apoplexy—in others no

external derangement perceptible—remarks—these fatal events frequently take place in the presence of others—in whatever way the individual may die great light thrown upon the case by the presence of liquor in the stomach and intestines—generally, however, death occurs when the individual is alone, from his falling asleep in dangerous situations or in the cold—remarks.

50. *With regard* to the detection of spontaneous combustion, from the cases on record, the great means will be the relative position of the deceased to the combustible substance; (the parts farthest from this substance being perhaps unconsumed)—the habits of the individual, &c.—concluding remarks.

### *Of death where there is question of personal agency.*

51. *Under this head* a number of questions present themselves—importance of the medical practitioner's being acquainted with certain distinctions of homicide established in the Courts of Justice

52. *Of Homicide*—*felonious homicide*—*culpable homicide*—*Manslaughter*—*justifiable homicide*—*Chance medley*, &c.

53. *Remarks*—under this head the following questions important to be carefully considered :  
 1. Are there no fatal diseases that have appearances similar to those found in the body on the present occasion ? 2. Could the person have in

flicted this injury upon himself? 3. Has not a fatal result, in this instance, taken place from a cause that in another person would have been of little or no consequence? Was every thing done for the recovery of the deceased? Or, might he not have recovered had proper treatment been pursued? And in certain cases, as in hanging and drowning, it may be asked—was the person killed in the manner alleged, or first deprived of life and then placed in that situation in order to baffle suspicion?—remarks and examples.

### *Of Poisoning.*

54. *Remarks.*

55. *Secret poisoning*—cases related.

56. *Definition of poisons*—difficulty of defining them—may be administered with criminal intent on the part of others or may be had recourse to by individuals for the purpose of taking away their own lives—frequently taken by mistake, and sold through ignorance—necessity for the practitioner to be acquainted with the various poisonous substances—noxious substances rendered inert by habit—cases related—peculiarities of constitution render some things poisonous which are not so to mankind in general—remarks—although all poisons may terminate fatally great difference in their *modus operandi*—remarks.

57. *Classification* according as they belong to

the mineral, vegetable or animal kingdom, and according to their action on the living frame as *Corrosive, Astringent, Narcotic, &c.* the most convenient.

58. *The majority of deaths by poison occasioned by those of the mineral kingdom—chemistry affords sure means of detecting many of these when really present—remarks.*

59. *Orfila's and Fodere's classification recommended, viz: Corrosive, or Escharotic—astringents—acrid -narcotic or stupifying -narcotic-acrid—and septic or putrefying--remarks.*

60. *Corrosive or Escharotic poisons* destroy the texture of the parts to which they are applied.

61. *Symptoms*--violent pain and sense of heat in the stomach and intestines--constriction of the mouth and fauces--frequent vomiting, often of blood--bloody diarrhoea--some times hiccup and tenesmus--pulse quick, small and hard, at length imperceptible--the body becomes very cold and covered with cold moisture, though these symptoms vary, there being sometimes intense heat with unquenchable thirst--generally great anxiety and oppression at the precordia--fetor of the breath--priapism induced by some poisons of this class--countenance becomes altered and convulsed and death succeeds --the internal senses generally remaining unimpaired until nearly the last--the rapidity of the fatal event depen-

dant on the quantity of poison swallowed—death generally, however, not sudden.

62. *On dissection*, body externally livid—countenance more or less distorted—on laying open the fauces downwards, the effect of the poison to be generally traced—the parts more or less excoriated and their texture perhaps destroyed—in the stomach and intestines marks of violent inflammation as destruction of the mucous membrane or gangrenous sloughs—frequently perforations—intestinal canal constricted in various parts—in the colon, frequently, ulceration—separation of the coats of the intestines not conclusive of poisoning—remarks—where a small quantity only of corrosive poison swallowed or the greater part rejected by vomiting no distinct traces of poison may be met with until we come to the larger intestines—remarks—the most notorious bodies of this class are certain metallic preparations, concentrated acids, saline compounds, &c.

63. *Astringent poisons*—their principal characteristic action is constriction of the elementary canal, if not of other passages—in sufficient quantity excite inflammation—*Lead* and its preparations constitute almost the whole of this class—remarks.

64. *Acrid or rubefacient poisons* produce inflammation when applied to the intestinal canal: many of them cause the same effect, attended

with suppuration, on the surface of the body—taken internally in sufficient quantity act like the *Corrosive*. This class almost wholly furnished by the vegetable kingdom—remarks.

65. *Narcotic poisons* affect the system with sleep or stupor—vary in their effects as along with stupor there are, occasionally, convulsions, delirium, paralysis, &c. Remarks—this class includes *Opium*, the *Cherry Laurel*, *Henbane*, &c.

66. *Narcotico-Acid* occasion the joint effects of the two last classes—remarks—*Symptoms*—agitation—pain—insensibility—convulsions—vertigo—stiffness of the limbs—redness of the eyes—dilatation of the pupils—sight and hearing impaired—foaming at the mouth—lividity of the tongue and gums—nausea—vomiting—frequent stools—pulse variable. Death occurs less speedily where the poison has been taken into the stomach than when thrown into the circulating system. Many of these symptoms common to various diseases, hence the necessity for attentive dissection to discover the poison or its absence. *This class comprehends some of the most deadly poisons—the upas—ticunas—deadly nightshade, &c. &c.*

67. *Septic poisons* all belong to the animal kingdom or to the gaseous—scarcely ever used with a criminal intent—less important therefore to the medical witness than to the practitioner—remarks.

68. *A legal investigation* may be required either in the case of the living or the dead body.

69. *When called during life* in a case where poison has been taken, the primary object of course is to save the patient and remove suffering—but still to bear in mind that a judicial inquiry may be necessary—remarks—ascertain what the individual last swallowed if possible—get possession of the vessel in which it has been contained and of the remains, if any—if he have vomited, secure the rejected matter—observe the symptoms—a corroborative proof, as to the particular deleterious article taken, is the successful exhibition of an established antidote. The substance in which the poison has been mingled, or the matter vomited, to be submitted to such tests as are at hand, to assist us in deciding on the proper practice for recovery—to give proper evidence in a Court of Justice, however, the mass to be reserved for deliberate and attentive experiment—remarks. In *cases of suspected poisoning* important to inquire into the habits of life, idiosyncrasies, &c. whether the individual be known to have been before similarly affected—whether particular articles of food, generally considered wholesome, have usually disagreed—of what his last meal consisted—whether any error or noxious agent have occurred in the culinary department. These injunctions palpably necessary where the person is still alive and the

great object is recovery—but they must even be attended to where death has taken place—our object then is the detection of the poison—the investigation with this view to be carefully conducted. The *cause of death to be sought for also by negative proofs*—as by the absence of all other signs of injury or derangement whether from violence or disease which might be urged as the cause of death. The *positive proofs* are the presence of the fatal substance and the known or presumed effects of such substance on the system.

70. *In searching post mortem*, for the presence and traces of poisons in the internal parts of the body—the rule of procedure applicable in all cases is, to examine the whole alimentary canal—laying open the fauces and œsophagus and examining the large intestines as well as the small—not to be deterred from the investigation by the length of time which may have elapsed since the individual's death—the detection of mineral poisons not being affected by the approach of putrefaction.

### *Of mineral poisons.*

71. *Remarks*—Chemical knowledge the great distinction as to the qualifications of the practitioner for clearing up the obscurities of poisoning by minerals—generally speaking, where the

metals are in question, the object of search should be to reduce them to an uncombined state.

### *Arsenic.*

72. *In its metallic state* not of much importance—requisite, however, to be able to recognise it in this state—*Black oxide*—remarks—*White oxide*—*arsenious acid*, commonly called *arsenic*—physical properties—remarks—generally kept in powder when it resembles, in appearance, refined sugar and has been mistaken for it as well as mixed with it for criminal purposes—solubility in water. In small quantity, when internally administered, speedily proves fatal.

73. *Symptoms*—austere taste in the mouth and fauces—fetor of the breath—often with ptyalism—constriction of the pharynx and œsophagus—teeth set on edge—hiccup and nausea, with vomiting, generally of a brown coloured substance, not unfrequently of blood—great anxiety—heat about the præcordia and syncope—Inflammation of the mouth, fauces and œsophagus—painful irritability of the stomach rendering it unable to retain the blandest liquid—stools black, fetid, mixed occasionally with blood—state of the pulse variable, generally frequent, small and irregular, but sometimes slow and unequal—palpitation of the heart—unquenchable thirst supervenes—the body becomes pungently hot, but sometimes icy cold and respiration difficult—

urine scanty, red and even bloody—countenance altered—a livid circle forms round the eyes—the body swells, is affected with itching and covered with livid spots—great loss of strength and feeling especially in the extremities—delirium and convulsions often priapism—and death. The above are the symptoms of the most formidable cases—in various instances they will differ in degree—their number and violence depending, (amongst other causes) on the quantity of poison swallowed, the nature, &c. of remedies administered and the constitution of the individual.

74. *Arsenic* has been administered in some cases by way of injection into the rectum or vagina and has induced death—effects on animals when so injected—cases related.

75. *Has induced death* also by having been applied to a wound or ulcer, or even to the skin—cases related.

76. *Inhalation of its vapours* has proved fatal—cases related.

77. *Appearances on dissection*—marks of inflammatory action in the mouth, fauces, œsophagus, stomach and intestines, in which there may be gangrenous spots or sloughs or even perforations—villous coat sometimes of a reddish brown colour and resembling paste—dark spots have been noticed on the lungs, &c. &c.—remarks—Mr. BRODIE's experiments on poisoning by this substance referred to—remarks—Mr. BRODIE's

deduction, that in whatever way arsenic is administered it does not produce its effects upon the stomach until it has been first carried into the blood, canvassed.

78. *Antidotes*—there is unfortunately nothing that will attract and combine with it in preference to the animal matter of the organ to which it is applied. The great objects of *treatment* must therefore be: 1. To remove the poison. 2. To administer such articles as may dilute or attenuate its causticity, and 3. If the patient survive long enough to diminish inflammation—remedies recommended by authors: Emetics, bland fluids—charcoal—sulphuretted hydrogen, sulphuret of potass—sulphur—the juice of the sugar-cane—magnesia—laudanum—injecting the stomach with water and then withdrawing the contents by means of a syringe, the operation being repeated until the water comes off clear and tasteless, &c.

79. *Summary of the proper treatment* to be pursued—vomiting to be induced by the common emetics—the syringe of Mr. Jukes may be had recourse to, a quantity of tepid water or of any bland fluid being carried into the stomach and afterwards withdrawn, the operation being repeated as often as may seem necessary—tepid mucilaginous fluids or sugared water, or chalk and water, or lime water, or magnesia, may be freely exhibited, and afterwards, should inflammatory

symptoms supervene, the case must be treated, like one of gastritis or inflammation of the stomach, by bleeding, blistering, &c. combined with a strict adherence to the antiphlogistic regimen --remarks.

80. *If the person be still living* every effort must be directed to his relief and welfare. It can generally be discovered that a mineral poison has been taken and the only difficulty to be experienced will be to distinguish whether it be arsenic or corrosive sublimate. Should the necessary information not be attainable and the symptoms be indistinct, the practitioner must endeavour to procure some of the deleterious article if there be any and try it by any test which may be at hand. If he discover in any manner that arsenic is the substance that has been swallowed, he must immediately labour for the recovery of the patient, being careful at the same time to retain the power of satisfying the proper authorities as to the fact of poisoning, by proving the presence of the poisonous article by subsequent analysis of the residue of the substance swallowed, or of that which is ejected by vomiting.

81. *The practitioner*, on such occasions, recommended to obtain the presence and assistance of another physician as soon as possible : or, if this cannot be accomplished to keep a strict watch over the suspected substance which he may

wish to examine at a future hour when not occupied by the more urgent business of relieving his patient.

82. *When he has opportunity* he must examine the matter deliberately and cautiously, and if unaccustomed to the operations of chemistry, he had better, if practicable, obtain the aid of a more expert person: all that is done must pass under his own eye, otherwise a question may arise as to the identity of the matter subjected to those experiments with that set aside for the purpose—cases of this nature related—remarks.

83 *The external appearances of the body* not to be overlooked—but the internal form the grand consideration.

84. *Mode of examination.* The trunk of the body to be carefully laid open from the top of the thorax to the cavity of the pelvis, taking care to wound no part of the digestive tube—the whole of the intestines to be removed, by careful separation, from their attachments, placing one ligature securely on the upper part of the œsophagus, a second on the lower part of the rectum and a third on the hepatic vessels—where the stomach is perforated, ligatures might be improper—the loss of the poisonous substance in such case must be prevented by attending to position, and clean sponges be applied to prevent the fluid from passing out and to absorb

what portion may make its way through—the whole intestinal canal to be then transferred into a large earthen vessel—and the alimentary canal being laid open throughout its whole extent the fluid contents to be placed in one vessel and the solid in another—the intestines to be then washed, if practicable, in warm distilled water and the product to be also carefully set apart—lesions of structure to be accurately searched after and noted—sloughs, gangrenous, inflamed and perforated spots, recommended by ORFILA, to be removed (with a portion of the parts around them,) and placed in alcohol.

85. *Tests*—Nitrate of silver—Chromate of potass—sulphurets and hydrosulphurets, &c. Objections to these various tests canvassed—the only sure method is reduction to the metallic state.

86. *Experiments recommended*—If there be no solid particles found in the stomach, the washings may be strained through a piece of linen rag, and the fluid being divided into different portions, each may be tested separately by the following reagents.

*Experiment 1.* Drop some of the suspected fluid on a piece of white paper so as to make a broad line: draw several times along this line a stick of *lunar caustic* and brush the streak lightly over with liquid ammonia. If arsenic be present, a bright *queen's yellow* is produced, which remains permanent for near half an hour.

*Exp. 2.* Dissolve in two drachms of the sus-

pected fluid three grains of subcarbonate of ammonia, and add a warm solution of five grains of *sulphate of copper*: if arsenic be present, a lively *grass green precipitate* will be produced.

*Exp. 3.* Into the fluid stir a moderate quantity of *charcoal* in fine powder: allow it to settle, then filter, and to the powder, when dry, add a little *carbonate of potass*: sprinkle some of this mixture on a red hot poker and if arsenic be present the smell of garlic will be perceptible.

*Exp. 4.* If any solid particles be found in the stomach, mix one part of them with three of a mixture, consisting of one part of *finely powdered charcoal* and two parts of *dry carbonate of potass*: put this mixture into a small glass tube, the upper inner surface, or empty part, of which clean with a feather, and stop the open end loosely with a little tow, or piece of soft paper: then place the closed end among red hot coals for a few minutes, or in the flame of a spirit lamp: when, if arsenic be present, a brilliant metallic crust will be found lining the upper part of the tube: and which, when placed on hot coals, will exhale dense fumes and a strong smell of garlic.

86. *Should all experiments* on the contents of the intestines fail; some of the portions, recommended by ORFILA to be cut from them and preserved in alcohol, to be combined with the carbonate of potass and charcoal, and be subjected to heat with a view of obtaining metallic arsenic by sublimation.

87. *It must be recollect*ed that the vehicle in which the poison may have been exhibited often

alters the results of reagents—if any of the precipitates, however, be dried and sublimed they will afford metallic arsenic.

88. *No single test* should be relied on—it is only from the concurrent results of all that the practitioner's evidence can be receivable and the reduction to the metallic state, where the quantity of poison is sufficient to enable him to do so, must never be omitted.

89. *Arsenic acid*, not common—unlikely to become the subject of investigation—should this happen the essential parts of our duty nearly the same as in the case of the arsenious acid.

90. *Black oxide of Arsenic*, an ingredient in the common *Fly powder* of France and Germany.

91. *Fly-water*—a compound of arsenious acid and treacle—also a virulent poison.

92. *Fowler's Arsenical solution* has all the properties of arsenious acid when given imprudently—administered as a medicine is reported by BROUSSAIS to have induced fatal diseases of another character—remarks—ought doubtless to be used with great circumspection—seems capable of being accumulated in the system and of thus predisposing to serious diseases.

93. *Yellow sulphuret of Arsenic—Orpiment* and the *Red sulphuret or Realgar* produce the same noxious effects—remarks.

94. *Arsenic* esteemed by some to be an anti-septic—it has been remarked that the bodies of

those killed by it resist putrefaction longer than others, but this is not established—various cases of poisoning by arsenic related.

*Mercury and its combinations.*

95. *Mode of proceeding* for examining the body of the poisoned individual, &c. the same as if arsenic had been taken.

96. *Metallic mercury* acts only mechanically on the living system—but when oxydized in the smallest degree, as when mixed with fat or oil, it may prove dangerous—at common temperatures mercury shewn by MR. FARADAY to be surrounded by an atmosphere of the same substance.

97. *Mercurial vapors*, probably always however oxydized, unquestionably poisonous—cases related, in miners, silverers of looking glasses, &c.

98. *Usual symptoms* of long exposure to such vapours—trembling and paralysis of the limbs—vertigo—loss of memory and other intellectual faculties—salivation—ulceration of the mouth—colic—asphyxia—asthma—haemoptysis—atrophy—apoplexy and death—cases related.

99. *Perchloride of mercury—oxymuriate of mercury or corrosive sublimate.*

100. *Chemical properties*—taste so acrid and disagreeable as to give rise to the assertion that enough of it could not be swallowed in a fluid

form to produce fatal effects—this idea contradicted by experience.

101. *Peculiar effects of mercury* when introduced into the system—increased flow of saliva—the gums sore and tender—a coppery taste perceptible in the mouth—breath offensive—when given to a greater extent, the soft parts swell—teeth become loose and even fall out—deglutition and speech are impeded—saliva flows copiously and incessantly, and sometimes parts of the tongue, fauces, &c. come away. Under these symptoms individuals have sometimes died. These effects readily produced by corrosive sublimate—remarks on its use as medicine.

102. *When administered* to the extent of two or three grains is an escharotic or corrosive poison--the following are the *symptoms*--styptic and metallic taste in the mouth, with a sense of constriction about the fauces, and burning heat in the throat--excruciating pain in the region of the stomach--severe vomiting, frequently of blood--redness and swelling of the countenance, sparkling appearance in the eyes, accompanied by contraction of the pupils—tumefaction and painful tenderness of the abdomen, increased on pressure. Pulse usually quick, small and hard—breathing difficult—surface of the body hot—convulsive motions of the muscles—cramps in the limbs—diarrhœa—suppression of urine—often severe salivation—anxiety and cold sweats. The

above are the symptoms when largely exhibited—in small and repeated doses it induces the specific mercurial action and might be thus exhibited as a poison.

103. *The external exhibition* of this salt will produce the same effects as the internal—case related—destroys the texture of the stomach and intestines more readily, and extensively when administered in solution—first action of this poison, considered by MR. BRODIE to be, upon the stomach—the heart and brain being sympathetically affected.

104. *Antidotes—Alkaline salts and earths—the sulphurets—infusion of Peruvian bark, sugar, &c.* would seem to have occasionally acted as antidotes, they have often failed—*Albumen* the best antidote—decomposing the sublimate and reducing it to the state of calomel—seems to have failed in some cases, but was in some of those employed only as a subordinate remedy—*vegetable gluten* recommended—from 500 to 600 parts of wheaten flour required to counteract one grain of the corrosive sublimate—the combination of gluten and the sublimate said to form a hard mass which may be subsequently evacuated.

105. *Treatment—give large quantities of white of egg diluted with water, or wheaten flour, but as the latter is required in larger quantity the former is preferable—the albumen, as already*

mentioned, reduces the sublimate to the state of calomel, which, by acting on the bowels, carries itself off by purging. Should the pulse be quick and hard, bleeding will be required; the warm bath may also be employed: during convalescence the patient should subsist altogether on broths, milk and demulcent fluids.

106. *Tests—Exp.* 1. If the suspected poison form a fluid and colourless liquid, place in it a small piece of clean polished copper and allow it to remain for a short time, when it will be covered with a white coating that will acquire a metallic lustre when rubbed, if corrosive sublimate be present.

*Exp.* 2. Pour the suspected liquid obtained by vomiting or otherwise into *lime water*—if corrosive sublimate be present, an *orange-yellow precipitate* will be produced.

*Exp.* 3. Drop a small quantity of a solution, supposed to contain the salt in question, on a piece of gold, and bring into contact a key or some piece of iron, so as to form a galvanic circuit, when, if sublimate be present the gold will be immediately whitened.

*Exp.* 4. If the solvent be wine, coffee, or any coloured liquid, agitate it slowly for ten minutes in a phial, with two or three drachms of sulphuric ether, after the fluids have separated by rest, pour off the ether, and evaporate it in a small porcelain capsule—if corrosive sublimate be present it will remain in a solid form in the capsule; and to prove that it is corrosive sublimate, dissolve the residue in water and precipitate by lime water.

*Exp. 5.* If the poison be found in the solid state its nature may be suspected by its sensible qualities : but to discover the truth, mix the suspected substance with an equal weight of dry *subcarbonate of potass*—put the mixture into a small glass tube and heat it gradually to redness—if it be corrosive sublimate, mercury will be obtained in metallic globules.

107. *Important to bear in mind* that many substances of an alimentary nature and the alimentary canal itself like other animal substances may reduce corrosive sublimate to the state of calomel—the latter state of reduction said to take place more readily if the stomach be void of aliment.

108. *How are we to distinguish* if calomel be found in the intestinal canal after death, whether it may have been taken a short time before dissolution, or be the oxymuriate which has undergone such a change ? *Ans.* *Calomel* will be found generally in the form of a white powder which may be scraped off, as it does not combine with the tissue of the intestines—when in contact with lime water, at the ordinary temperature, it will acquire a black colour. On the other hand Calomel formed by the action of vegetable or animal substances on corrosive sublimate, is never found in the form of powder in the digestive tube, being intimately combined with those substances so that lime water will not produce any change of colour.

109. *Corrosive sublimate* may have been taken and yet owing to the decompostion which it may have undergone in the stomach and intestines, it may not be detected in either the fluids vomited or in those still occupying the digestive canal. It must be therefore sought for in the solids—remarks.

110. *The Red Oxide of Mercury* and *Red Nitric Oxide* or *Red Precipitate* dangerous if swallowed: not likely to be taken as a poison—its colour, &c. guard against mistake and render concealment difficult.

111. *Sulphuret of mercury* or vermillion and *the sulphates and nitrates of mercury* are noxious; they require no separate notice. Every preparation of mercury, even the mildest, may, under certain circumstances, and in peculiar constitutions, prove dangerous and even fatal by causing diseases, termed *hydrargyria*, *mercurial erethismus*, &c. It has been asserted that the specific effects of mercury on the constitution have been renewed after having once ceased—cases related—the circumstance doubtful.

### *Copper and its combinations.*

112. *Remarks on its common employment* in the composition of culinary utensils, &c.

113. *Copper in its metallic state* not dangerous, but apt to combine with carbonic and acetic acids

and thus become so—cases of copper having been swallowed with impunity related.

114. *Both copper and leaden vessels*, if tinned at all though ever so badly, not apt to be injurious—the tin being acted on in preference to the copper or lead. Boiling even vinegar or acid fruits in copper vessels, not dangerous, unless done slowly or the fluids allowed to cool in them. Copper and bell-metal mortars, unless carefully attended to, hazardous in the shop of the apothecary : moisture, as well as several articles of the *materia medica*, may affect them, and a dangerous compound be formed.

115. *Verdigris* natural and factitious—its physical characters—not often *given* to take away life—has been voluntarily used for that purpose—when taken from accident has frequently caused mischievous results—cases related.

116. *Symptoms* induced by it—an acrid, stypic, coppery taste in the mouth—dry and parched tongue—sense of strangulation in the throat—vomiting—coppery eructations and continued spitting: vertigo—pains in the bowels—tenesmus—stools black and bloody—great general debility—cramps—pain and tremor in the limbs—pulse frequent and irregular, small and hard—syncope—heat of skin and ardent thirst—oppressed respiration—anxiety about the *præcordia*—scantiness of urine—cold sweats—death.

117. *Morbid appearances on dissection*—*slight*

mach and intestines inflamed—gangrene, sloughing and perforations being sometimes observable—all the fluids in the digestive tube tinged green by the salt.

118. *Antidotes*—*Sugar* has been asserted to be the most effectual remedy in cases where verdigris has been swallowed—it would not seem to be as effectual as *Albumen*.

119. *Treatment* of poisoning by verdigris—whites of eggs or copious draughts of syrup or of sugar and water, should be exhibited and all means employed to excite vomiting: after the production of which, the exhibition of the antidotes must be continued in more moderate doses, combating any inflammatory symptoms that may supervene by bleeding and other antiphlogistic measures.

120. *Tests*—*Verdigris* easily recognised when any of the poison remains unswallowed.

*Experiment 1.* *Sulphuretted hydrogen* throws down a *black precipitate*.

*Exp. 2* A clean plate of iron, immersed in the solution, becomes in time *coated with copper*.

*Exp. 3.* Mix the suspected substance with charcoal and heat to redness in an earthen crucible—metallic copper will be procured.

121. *The same process proper* when the fluid is combined with substances which prevent the action of tests—evaporate them to dryness and then calcine with charcoal—we are scarcely war-

ranted in any case in pronouncing that copper has been swallowed, until it has been reduced to the metallic state.

122. *In certain cases* no vestige of the poison to be detected, from its having been vomited up during life—the mucous membrane of the stomach and intestines may then be scraped, dried and subjected to the action of strong heat.

123. *The sulphate, muriate, nitrate and ammoniuret of copper* all poisonous and may be detected most decisively by the reduction of the metal.

### *Silver and its combinations.*

124. *Metallic silver* not poisonous.

125. *Nitrate of silver or lunar caustic* might be very mischievous, if introduced into the stomach, acting as an escharotic or corrosive poison—*remarks*—case of accidental ingestion related.

126. *Treatment*—Administer instantly a strong solution of common salt, to form an insoluble muriate of silver in the stomach. Then evacuate the contents of the stomach by an emetic, and if symptoms of inflammation nevertheless supervene, employ local and general bleeding, the tepid bath and emollient fomentations and clysters.

127. *Tests*—May be known by its turning the skin of the fingers black—muriatic acid and the soluble muriates precipitate the corneous muriate

of silver which is white and curdled—with arsenious acid and ammonia a yellow precipitate is formed—a stick of phosphorous placed in it precipitates the silver in a metallic state—when thrown on burning coals it increases combustion, swells and decomposes, emitting fumes of nitrous acid and leaving the metal on the charcoal.

*Antimony and its combinations.*

128. *Remarks.*

129. *Tartarized antimony or tartar emetic* in a large dose acts as a corrosive poison—it and antimonial wine the most common preparations—those whence danger is most to be apprehended.

130. *Antidotes and treatment*—When emetic tartar has been taken as a poison, vomiting, if not already present, to be excited by tickling the throat and by the administration of warm water in large quantities, and even if it have taken place the exhibition of warm water is advisable—decoction of the yellow conchona bark to be administered for the purpose of decomposing it—strong tea—decoction of galls or astringent roots and barks generally may be used as substitutes. Opium to allay vomiting when excessive and the antiphlogistic treatment generally necessary to remove the secondary symptoms.

131. *Tests*--If this poison be in solution a few drops of a spirituous infusion of galls will produce an instantaneous, copious, clotted, whitish-

yellow precipitate. If it be dissolved in wine the precipitate by the tincture of galls is a bright violet--if the solvent be tea, hydrosulphuret of ammonia produces a red precipitate. All the precipitates, as well as the preparations of antimony in general, when exposed to heat with charcoal, readily yield metallic antimony--remarks..

132. *Oxide and glass of antimony* and the *muriate or butter of antimony* are deleterious--From all these, metallic antimony may be obtained in the manner just mentioned.

### *Zinc.*

133. *Sulphate of Zinc or white vitriol*--remarks--when largely taken a poison--cases related.

134. *Treatment*--vomiting should be encouraged by drinking freely of warm water or of milk, which latter besides acting as an emollient, partially decomposes the poison, rendering it less active. The secondary symptoms to be treated by antiphlogistic measures.

135. *Some other combinations* of the foregoing metals poisonous, but the mode of procedure with respect to them does not materially differ from those already laid down--remarks.

### *Tin.*

136. *Muriate of tin*--in its action resembles corrosive sublimate--remarks.

137. *Treatment*—Dilute copiously with milk which seems to decompose the muriate: then excite vomiting by large draughts of tepid water and by irritating the fauces. Bleed and employ the warm bath, fomentations, &c. to combat any inflammatory symptoms which may arise; administering opiates, &c. to soothe the nervous irritation.

138. *Tests*—If the poison be in solution—solution of potass or of prussiate of potass throws down a white precipitate—hydro-sulphurets cause yellow precipitates. If the solvents be wine or coffee the solution must be freed from colour, by chlorine before being tested. The solid substances suspected to contain this salt should be mixed with charcoal and tried by heat in a crucible, which, in order to prevent the volatilization of the salt should be covered with two or three pieces of charcoal. In the course of 25 minutes, metallic tin will be obtained, which may be separated from the muriate of potass formed by water.

### *Gold.*

139. *Nitromuriate of gold* said to be poisonous—not likely to be used as poison.

140. *Antidotes and treatment*—The sulphate of iron in solution may be exhibited as an antidote—it decomposes the salt and throws down the gold in a metallic state—The antiphlogistic treatment must be adopted, and particularly the

use of emollient and mucilaginous drinks.

141. *Fulminating Gold* also poisonous.

### *Bismuth.*

142. *Remarks.*

143. *Subnitrate of Bismuth*—possessed of deleterious properties—remarks.

144. *Antidotes and Treatment*—Exhibit copious draughts of milk, which is firmly coagulated by the subnitrate, and by involving the poison affords time and opportunity to expel it from the stomach. Should symptoms of inflammation shew themselves, they must be combated by bleeding and other antiphlogistic measures.

145. *Remarks* on the *Sulphate of Iron* as a poison —case related of a charge of poisoning by this substance—doubtful whether the stomach would retain a sufficient quantity to prove directly poisonous.

### *Lead.*

146. *Remarks*—a poison of the astringent class; by some, however, ranged amongst the corrosive.

147. *Metallic lead* not dangerous.

148. *Preparations of lead* seldom perhaps used for the purpose of destroying life—much employed, however, for other nefarious purposes and not unfrequently produce fatal effects—remarks.

149. *We are exposed* in various ways to the deleterious influence of lead—remarks—Lead readily oxydized, and almost all the acids unite with those oxides—in such states exerts its pernicious influence on the living system—remarks.

150. *Acetate or sugar of lead*, the salt of lead more especially worthy of attention—its physical properties.

151. *Certain occupations* in which lead is much used, unfavourable to health.

152. *Of the colica pictorum*—the Devonshire colic—dry belly-ache or painter's colic.

153. *Symptoms* of the colic induced by lead—vague pains in the abdomen, with constipation—frequent vomiting—paleness—emaciation—uneasiness about the head. As the pain of the abdomen augments, pressure seems to afford temporary relief—the reverse of what takes place from corrosive poisons—a contraction about the navel is perceptible as well as in other parts of the abdomen—urine suppressed or retained—sweet eructations—convulsions, paralysis, &c. frequently occur and the patient occasionally dies in excessive torture.

154. *Accounts of the dissections* of those who have died in this manner, but little satisfactory—not always alike—constriction in the alimentary canal, for the most part in the colon, the common characteristic derangement—Inflammation of the mucous coat. When death has not been

sudden, the mesenteric and lymphatic glands said to have been inflamed and obstructed—remarks.

155. *Gallic acid and tannin* unite with lead in solution, forming an insoluble substance—whence all liquors that have been kept in oak casks, for a certain time, must be freed from lead.

156. *Tests*—Sulphuric acid, poured upon the acetate of lead, decomposes it and fumes of vinegar are evolved—with common spring water which contains sulphates and carbonates, a turbid solution is formed—with distilled water the solution is limpid and if to this clear solution sulphuric acid be added, a white precipitate of sulphate of lead is formed—sulphuretted hydrogen blackens the solution, as well as the hydrosulphurets—sulphate of potass produces a white precipitate as well as the subcarbonate of soda—most certainly known, where practicable, by its reduction to the metallic state on charcoal by means of the blow-pipe—remarks.

157. *Minium or red lead*—chemical properties—colour an objection to its use as a poison—has been taken however.

158. *Litharge* employed to cure wines that were pricked—cases of poisoning related.

159. *Carbonate of lead, Cerusse or white lead*, the cause of various trades being unwholesome. How formed accidentally—cases of poisoning related.

160. *Soda water or sour ale or porter* frequently act on the lead of the pumps by the aid of which they are raised from the cellar.

161. *Tests* for the salts of lead in general when added to syrup, wine, Hollands, &c. for fraudulent purposes. First, discharge the colour by chlorine and then add to different portions the following reagents. Sulphate of potass which forms a white precipitate—hydrosulphuret of do., a black—chromate of potass, a canary yellow. A watery solution of sulphuretted hydrogen forms a dark brown precipitate insoluble in tartareous acid. The great proof will be the production of the metal by calcination.

162. *Antidotes and treatment*—The sulphates of soda and magnesia seem to be the most useful antidotes against the salts of lead. Either of these may be freely given, and if the pulse be hard the patient must be bled, put upon the antiphlogistic treatment, &c. When convalescent he should live almost wholly on a milk diet.

### *Concentrated Acids*

163. *Are corrosive poisons* of the most active kind—rapidly destroy the texture of animal and vegetable substances, whether these may be living or not—remarks.

164. *Sulphuric acid or oil of vitriol*—remarks.

165. *Symptoms*—excruciating pain—nausea and excessive vomiting—matter vomited often very black from the destruction of the fibre, or red from the mixture of blood, causing extreme pain as it passes through the mouth, and producing effervescence if applied to the hearth or pavement, or to calcareous substances—tender-

ness and pain in the abdomen, with costiveness or bloody stools--general restlessness--difficult respiration--quick, small, and irregular pulse--convulsions of the face--preservation of the intellectual faculties to the last--destruction of the soft parts about the mouth, &c. as well as fetor from them--*not of vital importance to detect which of the three mineral acids it may be.*

166. *On dissection* the internal parts of the body, over which it has passed will be found converted into black pulpy sloughs, emitting the offensive smell produced by destruction of the animal fibre.

167. *Antidotes and treatment*--Dilute instantly and largely with milk mixed with calcined magnesia, chalk, soap or the fixed alkalies--chalk less convenient than calcined magnesia from the copious evolution of gas, but there is no time for delay--the secondary symptoms to be treated like a case of inflammation of the intestines--cases related.

168. *Sulphuric acid* has not unfrequently been used by mothers to poison their offspring--cases related.

169. *A composition of sulphuric acid and indigo*, made use of in dyeing, said by ORFILA to be frequently employed as a poison--case related.

170. *Nitric acid*, or aquafortis--does not differ essentially in its effects from the oil of vitriol--instances of death by it more frequent--remarks--physical properties, &c.--remarks.

171. *On dissection* the most characteristic features are—the lips, chin and hands probably of the patient being stained with orange coloured spots, and a layer of yellow matter covering the mucous membrane of the œsophagus, stomach and every part over which the acid has passed—other appearances resemble those produced by corrosives in general.

172. *Remarks on its combination* with potass, soda and baryta, &c. &c.

173. *Antidotes and treatment*—The principle and practice are precisely the same as for sulphuric acid.

174. *Tests*—Boil the fluid, if any remain unswallowed, or the matter rejected by vomiting, over copper filings, when orange coloured fumes will be disengaged if nitric acid be present. When none of the poison remains and death has taken place, the appearances on dissection are the best evidence that nitric acid has been taken.

175. *Muriatic acid or spirit of salt* acts chiefly like the two previous acids and requires a similar treatment—remarks.

### *Alkalies and alkaline earths.*

176. *Soda*—rarely obtained pure—unknown in the ordinary economy of life in that state—and commonly existing in the form of carbonate or subcarbonate which are not particularly injurious to the living system—would be extremely deleterious if taken into the stomach.

177. *Potass*, in its pure state, constituting the *Potassa fusa, kali purum or common caustic* is extremely corrosive--cases related of its accidental administration--would not seem to have been ever administered as a poison.

178. *Ammonia*--cases of poisoning by this substance on record; not likely to be administered in a sufficient quantity to destroy life from its great pungency.

179. *Antidotes and treatment* where the alkalies have been taken in sufficient quantity to give rise to alarming symptoms. Vinegar and other vegetable acids should be instantly and freely administered, or oil in considerable quantities, which combines with the alkali and forms soap. Dilute also freely with demulcents and employ bleeding or other antiphlogistic means to remove any inflammatory symptoms.

180. *Lime*, from experiments on animals, would, if introduced into the stomach, occasion death by inflammation.

181. *Treatment* required, the same as where the alkalies have been taken.

182. *Baryta* and its compounds known to be most virulent poisons--no cases of poisoning by it except in the way of experiment--may however give rise to investigation.

183. *Treatment*, where baryta or its compounds have been taken, must consist in diluting as soon as possible with bland fluids holding in solution

the sulphate of soda or of magnesia—these salts decomposing the salt of baryta and forming an inert, insoluble sulphate in the stomach: then excite vomiting by irritating the fauces.

*Alkaline and earthy salts.*

184. *Subcarbonate of potass*—a poison of considerable activity—fatal cases related.

185. *Oil* successfully administered as an antidote—cases related.

186. *Treatment* the same as required for the alkalies.

187. *Nitrate of potass*, Nitre or salt petre—much used for various purposes and liable to be mistaken for other substances, as for Glauber's salts, &c.—cases on record where an ounce and a half have proved fatal even where proper remedies were administered—cases related—seems to induce death by causing a high degree of inflammation of the stomach.

188. *Treatment* will consist in diluting freely, with milk and bland demulcents, whilst the inflammatory symptoms must be combated by bleeding, &c. as in the case of the other *corrosives*.

189. *Sulphuret of potass* or liver of sulphur, though formerly deemed an antidote to arsenic and corrosive sublimate, is a powerful corrosive poison—cases related.

190. *Tests*—Is decomposed by the acids and sulphuretted hydrogen, well known by its odour, disengaged.

191. *Antidotes and treatment*—Vinegar or lemon juice mixed with water should be administered to decompose the sulphuret—induce vomiting and guard against inflammation by the antiphlogistic treatment.

192. *Muriate of Ammonia* —a corrosive poison.

193. *Tests*—On the addition of potass or soda, the odour of ammonia will be exhaled—to prove that it is ammonia, dip a glass rod in muriatic acid and bring it in contact with the vapour—white fumes will be formed.

194. *Antidotes and treatment*—Vomiting to be induced by warm water or by irritating the throat and the inflammatory symptoms to be counteracted by the usual means.

### *Phosphorus.*

195. *If taken into the stomach* a most virulent poison—dissolved in oil its action more violent.

196. *Tests*—Readily known by its alliaceous smell and combustible properties.

197. *Treatment*—Inflammation being the great effects of its internal administration, the appropriate remedies for its removal to be had recourse to. The poison to be removed if possible from the stomach—water, containing magnesia in suspension, to be largely exhibited to neutralize the phosphoric acid which may be forming.

### *Diamond—Enamel-Glass.*

198. *In powder* formerly considered poisons—remarks—act only mechanically on the stomach—cases related.

### *Of Vegetable Poisons.*

199. *Remarks*—Poisoning by those substances not so common—remarks—difficult of detection by the aid of chemistry—the utmost conclusion attainable being, that vegetable matter is present—remarks—active principles of several vegetables separated, as *morphine* from opium—*veratrine* from the veratrum album, *colchicum*, &c.

200. *The Practitioner* should be conversant with the external appearance and physical properties of every article of the *materia medica*, especially of the vegetables, and know the appearance of the living plant as well as when reduced to powder—tincture, extract, &c.—remarks. No plants corrosive poisons—the following article, however, obtained from the vegetable kingdom belongs to that class.

### *Oxalic acid.*

201. *So called from the oxalis acetosella or wood-sorrel which contains it in large quantity—*remarks—frequently mistaken for Epsom Salts. Dr. CHRISTISON's and Dr. COINDET's experiments referred to—these gentlemen infer that Oxalic Acid acts on the stomach as a corrosive,

dissolving the gelatine of its coats when concentrated and in sufficient quantity—death occurring by sympathetic injury of the nervous system. *When diluted*, acts on distant organs by absorption, first on the brain and spinal marrow—secondly on the heart and lungs.

202. *Antidotes and treatment*—Administer as speedily as possible a mixture of chalk or of magnesia and water and then evacuate the oxalate of lime or of magnesia, formed, by exciting vomiting. Bear in mind not to administer alkalies for the purpose of neutralizing the acid—the alkaline oxalates being, themselves, highly deleterious.

203. *To guard against* oxalic acid being sold for the sulphate of magnesia, it has been proposed, 1. As the salt is used for few purposes but cleaning leather, to expel it from the shop of the druggist—remarks. 2. To write “*poison*” on its envelope. 3. To colour, e. g. with five per cent. of rose pink. The taste of the two different—that of the acid *sour*, of the salt *bitter* and *saline*—the acid reddens litmus paper, the neutral salt does not change its colour—if a crystal be dropped into a little writing ink, the acid converts it of a reddish brown, the Epsom salt does not change it.

204. *Tests*—Muriate of lime, from a solution containing this acid or an oxalate, precipitates an insoluble oxalate of lime—but it also precipi-

tates with the carbonates, sulphates, phosphates, tartrates, citrates and with all their acids except the carbonic—the following procedure will discriminate between those precipitates—The Nitric acid will not take up the sulphate of lime—a few drops of it dissolve the oxalate—The hydrochloric acid will not dissolve the oxalate unless in very large quantity, whilst 2 or 3 drops will take up the carbonate, phosphate, tartrate, citrate—remarks on some other tests.

### *Acrid vegetable poisons.*

205. *Also termed rubefacient*—remarks—the poisonous effects of most of the articles of this class almost always the consequence of ignorance or imprudence.

206. *Veratrum album*—white Hellebore or Indian poke—*Helleborus niger*—Black hellebore—*Helleborus foetidus*—Fœtid Hellebore—*Veratrum viride*—itch weed—remarks—Fatal cases from the use of those plants not many—remarks—their pharmaceutical preparations generally those with which we may have to do—necessity of being acquainted with their physical and medical properties. The active principle of the Hellebores, *veratrine*, lately separated—a quarter of a grain acts powerfully as an emetic and cathartic. Veratrine, as well as the plants whence it is obtained, ranged by ORFILA under the *Narcotico-acrid poisons*—remarks.

207. *Cucumis Colocynthis*, *Coloquintida*, Colocynth or *Bitter apple*—resorted to occasionally to

induce abortion—has sometimes proved fatal—remarks—but rarely used for the purpose of destroying life.

208. *Stalagmitis Cambogioides*, Camboge or Gamboge—colour its most prominent characteristic and this property apparently maintained under the changes induced by passing through the alimentary canal—not much reliance, however, to be placed on the mere circumstance of colour in the digestive contents—but little chance of its coming under our observation as a poison.

209. *Colchicum autumnale* or meadow saffron. The supposed active ingredient in the *Eau medicinale d'Husson*—is said to have proved fatal—remarks—cases related. *Veratrine* the active principle also of the colchicum.

210. *Aconitum napellus*, wolfsbane, monkshood or aconite—remarks—has been mistaken for other vegetables—cases related.

211. *Œnanthe crocata*—Hemlock dropwort—remarks—cases related.

212. *Arum maculatum*—wake robin—*A. dracontium*—green dragon—*A. triphyllum*—Indian turnip.

213. *Ranunculus acris*—Butter cups and other varieties of *Ranunculus*.

214. *Scilla maritima* or squill—remarks—active principle, *scillitine*, lately separated, extremely acrid and energetic.

215. *The following plants* of highly deleteri-

ous properties belong to this class—their different effects on the human system not clearly defined—our means of discrimination also between the one and the other very imperfect.

216. *Momordica elaterium*, wild or squirting cucumber.

217. *Euphorbia*—spurge, many plants of this acrid genus, poisonous.

218. *Juniperus Sabina*—savine—often resorted to for procuring abortion.

219. *Rhus Toxicodendron*, poison oak—*Rhus Radicans*, poison vine—*R. vernix*—poison sumach.

220. *Lobelia syphilitica*—cardinal flower—*L. inflata*, Indian tobacco or emetic weed—remarks—cases related.

221. *Phytolacca decandra*—poke or pigeon berries.

222. *Symplocarpus foetidus*—*Ictodes foetida*—*Dracontium*, or skunk cabbage.

223. *Jatropha curcas*—Indian nut—*J. manihot*.

224. *Convolvulus scammonium* or scammony.

225. *Croton tiglium*.

226. *Bryonia alba*—white bryony.

227. *Anemone pulsatilla*—wind flower, and other varieties of *Anemone*.

228. *Daphne* in all its varieties.

229. *Delphinium staphisagria*—stavesacre, and its vegetable salifiable base—the *Delphinine*.

230. *Sedum acre*—wall pepper or stone crop.

231. Many other vegetable substances belong to

this class, but they are of minor importance--this class not so important as those which have to follow--can hardly produce fatal effects except by accident--generally there will be no mystery in the case--the patient not dying instantly may be able to give some account of the occurrence--on learning the history of the event a correct conclusion may be formed by examining the place where the noxious article was obtained and finding more of the same kind growing.

232. *Antidotes* to the acrid class of vegetable poisons--none.

233. *Treatment* must consist in evacuation, dilution and attention to symptoms.

### *Narcotic Poisons.*

234. *Remarks*--of much greater importance than the former class, although less numerous.

235. *Opium*--remarks--in the various ways of homicide, suicide and accident the cause of death--Physical properties--readily recognizable as well as all its preparations, by its peculiar taste and smell--remarks.

236. *Opium* in a small dose stimulates; in a large one these effects soon superseded or followed by sedative effects--in excessive quantity by insensibility, coma, obscurity of pulse, incapability of being roused by stimuli and death--remarks on idiosyncrasies, &c. in modifying the action of opium--remarks.

237. *Appearances on dissection* by no means satisfactory--marks of inflammation have been found in the stomach, but generally no evidences of an inflammatory state of the brain or its membranes--cases related.

238. *Tests*--none, if we except the peculiar and familiar smell of the drug. Its soporific powers traced to an alkaline substance called *Morphine*, its exciting to a second termed *Narcotine*--case of poisoning by the acetate of morphine related--remarks.

239. *Treatment*--The most advisable plan is to induce vomiting, if possible, with sulphate of zinc, tartar emetic or sulphate of copper--but the administration of fluids with the view of promoting vomiting must be forbidden, as they dissolve opium and promote its absorption--bleed immediately after the ejection of the poison and repeat the operation if necessary. Afterwards administer alternately water acidulated with any vegetable acid and a strong infusion of coffee warmed. In ten or twelve hours exhibit an Enema and let the arms and legs be well rubbed--Purgative Enemata should be continued if it be suspected that any of the opium still remains in the large intestines. The affusion of cold water on the head and body is also a valuable remedy, and to fulfil the first indication, that of removing the poison from the stomach, the syringe of JUKES, before referred to, may be, and has been, successfully employed--cases related.

240. *Laciuca virosa*--or strong scented lettuce--the extract acts like opium and requires a similar plan of treatment.

241. *Prunus laurocerasus*--Cherrylaurel--remarks--*poisonous properties particularly exhibited in the simple distilled water and essential oil*--remarks--case related--its deleterious properties dependant upon the

242. *Acidum Hydrocyanicum*, Hydrocyanic or Prussic acid--this most virulent poison has been erroneously considered to have proved fatal when applied to the skin--*distilled water of the Laurocerasus or laurel water* amounts to little more than a dilute preparation of prussic acid--physical properties.

243. *Tests of Prussic acid*--Perhaps the only certain one is the odour of the acid (that of bitter almonds or of the peach) exhaled from the body--the following have been recommended--Agitate the blood found in the ventricles of the heart, and the fluids found in the stomach, brain and other cavities, with distilled water ; and having filtered, add to a portion of the liquid a few drops of a solution of sulphate of iron --If prussic acid be present, a precipitate of a burnt brown colour will fall, which, on adding a little sulphuric acid, instantly changes to a bluish green, and gradually deepens to a beautiful full blue.

244. *Antidotes and treatment*--We are not acquainted with any antidote--Brandy and water have been recommended and ammonia--the latter in combination with diluted camphorated

spirit or oil of turpentine—the whole class of diffusible stimuli will be found useful.

245. *In the form of Laurel water* was the subject of a remarkable trial—case related---its action seems to be on the nervous system—in many instances death has instantaneously followed its exhibition. Where taken in this form—the same treatment is required as recommended for the prussic acid.

246. *Prussic acid* also the poisonous component of several other substances as the *Amygdalus communis*, Bitter almonds—*A. Persica*, the peach, its kernels, leaves and flowers—*Prunus Avium*, the black cherry, its kernels—*P. Padus*, bird cherry, its bark.

247. *Almost all substances* possessing the odour of bitter almonds have been found to contain prussic acid. When any of these substances has been taken, the treatment is the same as for prussic acid.

248. *Hyoscyamus niger*—Black henbane—*H. albus*—white do.—remarks—death often occasioned by them—other varieties of *Hyoscyamus* poisonous—Its active principle—*Hyoscyamine* separated from it.

249. *Solanum Dulcamara*—Woody nightshade or bitter sweet—case related—not very poisonous. *Solanine*, its active principle separated from it.

250. *Taxus baccata*, the yew—cases related.

251. *Remarks on other substances* of the Narcotic class of more trifling importance.

252. *Gilseminum nitidum* of Michaux—the yellow Jessamine, added to this class by Dr. BECK—cases related.

253. *The general treatment* recommended in cases of poisoning with opium proper in all cases not particularly noticed in the preceding list of Narcotics.

### *Narcotico acrid poisons.*

254. *All furnished* by the vegetable kingdom—very numerous and formidable—remarks.

255. *Atropa Belladonna*—deadly night-shade—remarks—Dilatation of the pupil a well known effect from the use of the Belladonna, of which advantage is taken in surgery. Its active principle---*Airopine*---separated from it—extremely virulent.

256. *Datura Stramonium*, thorn apple or Jamestown weed—cases related—its active principle, *Daturine*, separated by BRANDES—other varieties of the Datura poisonous.

257. *Strychnos Nux vomica*—remarks—cases related—its active principle *strychnine* separated from it, more active than any of the immediate vegetable principles—exerts its influence on the nervous centres.

258. *Upas tieute and Upas antiar*—remarks—owe their poisonous qualities to the *strychnine*—

act precisely like the Nux vomica--old ideas regarding the *Bohon-Upas* now generally exploded.

259. *Strychnos Ignatia*--Bean of St. Ignatius; operation similar to that of the Nux vomica--Base, strychnine.

260. *Brucea antidysenterica*--false Angustura Bark has been given by mistake for the true Angustura and occasioned death. Its active principle, *Brucine*--acts like strychnine on the nervous centres.

261. *Nicotiana tabacum*--tobacco--numerous fatal instances from its administration by the mouth; as well as in the form of infusion or smoke per anum. Experiments on the infusion and oil by Mr. BRODIE--remarks.

262. *Digitalis purpurea*--Fox-glove--remarks--Peculiar effect of this substance, great reduction of the frequency of the pulse and of the vital action generally--only to be relieved by the diffusive stimuli. Active principle *Digitaline* lately separated--very energetic.

263. *Secale cornutum*, Ergot, spurred rye--remarks.

264. *Lolium temulentum*--Darnel--its effects when eaten in bread--remarks.

265. *Anagallis arvensis*--Meadow pimpernel.

266. *Aristolochia clematitis*--common birthwort.

267. *Sium latifolium*--water parsnip.

268. *Conium maculatum*—Hemlock—remarks--its offensive smell, resembling that of cat's urine, may aid in discriminating between it and other articles resembling it—cases related.

269. *Cicuta virosa* or *aquatica*--waterhemlock--remarks.

270. *Cicuta maculata*—Snakeweed or American hemlock--remarks.

271. *Spigelia Marilandica*--pink root.

272. *Kalmia latifolia*--*angustifolia*--Ivy, laurel

273. *Sanguinaria canadensis*--Bloodroot.

274. *Fungi*—Mushrooms—remarks—circumstances to excite our suspicion of Mushrooms—A marshy situation in the shade—the substance soft, porous and moist—the surface more or less dirty—a glairy coat covering it—a virulent smell—a bright colour or combination of different colours—according to ORFILA, all should be regarded as dangerous which have bulbous or soft stems, or have fragments of skin glued to their surface--remarks.

275. *Laurus Camphora*--cases where Camphor has induced narcotic effects when given by the mouth as well as when administered by clyster—remarks.

276. *Cocculus Indicus*—the fruit of the *Menispermum Cocculus*—its active principle, *Picrotoxin* separated from it—very energetic.

277. *Ticunas*, an extract obtained from various plants by the Indians of South America.

278. *Woorara* or *Woorali*, a poison used by the Indians of Guiana to poison their arrows—seems to induce death by destroying the functions of the brain—remarks and cases.

279. *Hippomane Manchinella*—the Manchineel Tree.

280. *Curare*—War-poison of the Indians of the Orinoco.

281. *Remarks on other substances* of trifling importance belonging to this class.

282. *Treatment* for any of the Narcotico Acrid class—emetics must be used to get rid of the poison and should symptoms of cerebral congestion supervene, or of inflammatory action in the lining membrane of the digestive tube—Bleeding will be advisable and afterwards dilute acidulous drinks frequently repeated.

283. *We are not possessed* of any antidotes against them.

284. *The vegetable kingdom does not furnish* any of the last or *Septic* class of poisons.

### *Animal Poisons.*

285. *Remarks*—It can rarely happen that a person dies from the contact of animal matter without a clue to the real history of the case being afforded, and it happens still more rarely that a person is destroyed in this way by criminal design either on his own part or that of others.

286. *In a medico-legal point of view* but little can be said on this subject--in the detection, there are no indications by which the sense of smell can go farther than to ascertain that animal matter is in question--in the majority of instances symptoms and appearances will be the chief guides, aided by information as to the history of events.

287. *Cantharis, Meloe and Lytta vesicatoria*--the Spanish fly--properties of the powder and Tincture.

288. *Syptoms*--Nausea, vomiting and purging, the ejected matter being frequently bloody and purulent--acute pain at the stomach--colic--heat and irritation of the bladder and urinary organs, with most painful priapism--pulse quick and hard--thirst often great--if not relieved, convulsions, tetanus, delirium, syncope and death.

289. *On dissection*--inflammation, and erosion of the stomach : green shining particles of the powdered flies sometimes adhering to the inner coat of that viscus or mixed with its contents. Intestines and kidneys inflamed as well as the bladder.

290. *Tests*. The Poison can only be recognised by the appearance of the green shining particles which are visible in the finest powder, and by the symptoms--Tests of the tincture of Cantharides, enumerated.

291. *Treatment*--Copious dilution with milk and demulcent fluids, bleeding, the warm bath,

opiate frictions and clysters of mutton broth or any emollient--oil must not be administered internally. It dissolves the active principle--the Cantharadine—and thus adds to its powers.

292. *Lytta vittata*--*Meloe Americana*--Potatoe Fly, possesses similar properties with the Cantharides--Cantharadine also its active principle.

293. *Poisonous Fish*--remarks--no fish seems to partake of a poisonous property unless it has undergone some morbid change--the property probably a poison *sui generis*, always most active after the vital powers of the fish have ceased--*Balistes Monoceros*--Old wife. *Tetrodon scelatus*--tunny. *Ostracion globellum*--smooth bottle Fish. *Tetrodon Ocellatus*--Blower or blazer. *Muræna-major*--Conger Eel. *Coryphæna splendens*--Dolphin. *Sparus Chrysops*--Porgee. *Coracinus major*--Gray snapper. *C. Minor*--Hyne. *Perca major*--Barracuda. *P. Marina*--Rockfish. *P. venenosa*--Grooper. *Scomber maximus*. Kingfish. *S. thynnus*--Bonetta *S. another species*--Cavalloe, Horse eye. *S. cœruleo argenteus nudus* of Browne--Spanish mackarel. *Mormyra* of Browne -Blue Parrot fish. *Clupea thryssa*--yellow billed Sprat. *Cancer astacus*--Sea-lobster. *C. ruriculus*--Land crab. *Mytilus edulis* Mussel.

294. *The yellow billed sprat* the most dangerous and the following the usual *symptoms* induced

by it—itching over the whole body—violent colic—contraction, and pungent heat of the œsophagus—nausea—heat of the skin, and great quickness of pulse—giddiness—loss of sight—cold sweats—insensibility death—said to be the only fish which produces immediate death within the tropics—opinion, that the poisonous character of the museel is owing to the spawn of the *Stella marina*, an insect which sometimes, lodges in the mussel and the spawn of which is so caustic that when applied externally to the skin, itching and painful swellings are occasioned--noticed.

295. *Treatment*—An emetic of sulphate of Zinc, followed by a cathartic to be immediately exhibited. If however spontaneous vomiting or purging should be very great it may sometimes be necessary to check it by anodynes—these are also proper when spasms supervene—for the sequelæ a solution of alkalies in water recommended by Dr. CHISHOLM. Sugar containing a few drops of sulphuric ether also recommended.

296. *People frequently killed* by the bite of serpents—they are however cases of accident not much allied to Medico-legal enquiry—the same may be said of the bites of rabid animals. *Coluber berus*, the *viper*, the most common poisonous serpent of England and the European Continent. *Crotalus horridus*—the Rattlesnake and the Mockasin—where the poison of those serpents is very active, the irritation is so sud-

den and violent that death soon takes place.

297. *On dissection*, the only alteration of structure is in the parts close to the bite where the cellular membrane is completely destroyed and the neighbouring muscles are very considerably inflamed. When the poison is less intense—there are, a slight degree of delirium—severe pain in the part bitten—in about half an hour swelling takes place from the effusion of serum in the cellular membrane—this continues to increase with greater or less rapidity for about two hours; extending during that period in the neighbourhood of the bite: the skin over those parts becoming quite cold—the action of the heart so weak that the pulse is scarcely perceptible—stomach extremely irritable. In about sixty hours the symptoms go off—inflammation and suppuration occur in the injured parts and when the abscess formed is very great it proves fatal. When the bite has been in the finger it has immediately mortified—cases related.

298. *Treatment*—Arsenic has been recommended as well as Ammonia and the Eau de Luce and although their efficacy has been doubted they may be useful as stimulants and by inducing perspiration. Several plants have acquired a temporary reputation in North and South America—as the Aristolochia serpentaria—Prenanthes alba—Polygala senega—Eupatorium ayaparia—the external treatment, most re-

lied on is the application of ligatures above the part bitten, but not too tight or long continued—the wound to be cauterised with a hot iron or lunar caustic and afterwards compresses applied to the part—Perspiration to be encouraged by small doses of Ammonia, Madeira wine and Ether and the patient to be kept in bed well covered. Gangrene is to be combated by anti-septics.

299. *Stings of Insects* have often proved fatal—The sting of the *Scorpion*, *Tarantula*, *bee*, *humble-bee*, *wasp* or *hornet* requires, according to its violence, internal or external remedies, or both. Generally emollient anodyne applications allay the irritation. Ammonia and Tobacco juice have been likewise recommended—Ammonia must also, if the symptoms require it, be administered internally. If a person be found dead in a lonely situation and has perished from the bites of any venomous animal, the wound will generally leave sufficient indications—remarks.

300. *Ornithorhynchus paradoxus*, the Mullingong of New South Wales—spur of this animal contains poison—symptoms like those produced by the bites of poisonous serpents—have not proved fatal—The exhibition of oil and ammonia has been recommended—requires, however, the same treatment as poisoned wounds.

301. *The Pheasant* has been considered to have been sometimes poisonous during the win-

ter and spring—cause assigned, the feeding on the buds of the *Kalmia latifolia*—remarks—cases related.

302. *Honey* sometimes poisonous—when obtained from poisonous vegetables, as from the *Kalmiae*, *daturæ*, &c.—remarks.

303. *The septic poisons* already enumerated less dangerous when taken into the stomach than into the circulating system.

304. *Putrid meat*, however, said to have acted as poison—but generally in a certain state of putrefaction, animal food is more digestible and much used without any disagreeable effects resulting—beyond this stage probably dangerous—remarks and cases. M. MAGENDIE's experiments on the effects of substances in a state of putrefaction referred to—not satisfactory from not having been made on the human subject—remarks.

305. *Smoked meats and sausages*, especially the German, said to have acted as poison—remarks.

306. *Wounds received in dissection*—several fatal cases have occurred—conceived by some to depend upon a depraved state of the surgeon's health rather than upon that of the body—great reason for believing, however, that the latter has also considerable agency—almost all the fatal cases have occurred where the subject had died of peritoneal inflammation—cases related.

307. *Treatment*—Remarks on some *modi meendi*—no fear of the poison inducing unpleasant results when taken into the stomach—the best plan therefore is to carefully suck the punctured part so as to extract as much as possible of the poison and then to apply an emollient poultice—The systematic affection to be treated according to the symptoms which may present themselves.

308. *Cases of death by maggots*—In warm climates the larvæ of the domestic fly frequently breed in wounds and ulcers.

309. *Concluding remarks on poisoning*.

310. *Punishment of murder by poisoning*—in all civilized countries deemed one of the most atrocious of crimes and visited by the severest punishment—remarks.

## SUFFOCATION.

211. *Includes every variety of death from impeded respiration.*

312. *Mode of death* in cases of noxious inhalation—*drowning*—*hanging*—*strangling* and *smothering*—to all these the following remarks applicable.

*308.  
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1. Whatever the remote or exciting cause of suffocation, death is immediately produced by impeded circulation—remarks. 2. Respiration prevented, in whatever way, soon occasions

*Bickart's theory of suffocation is this—He says that when oxygen is not applied the circulation ceases, but then the black blood follows the heart's life.*

death. 3. Respiration being interrupted, the passage of the blood through the lungs is impeded—it accumulates in the cavity of the right side and in the neighboring veins—the left side of the heart being emptied. Hence rupture and effusion may occur in the lungs as well as in the brain, and apoplexy becomes an attendant on suffocation. Lastly, this *ratio moriendo* explains the principal *morbid appearances* to be expected. The lungs are of a deep blue colour—with the blood extravasated in the aircells—right auricle and ventricle full of dark blood, and the neighbouring veins—lividity of the countenance, of the breast and other parts of the body—turgescence and even rupture of the vessels of the brain—remarks.

### *Noxious Inhalation.*

#### 313. *Remarks.*

314. *Carbonic Acid gas* formed under a variety of circumstances—remarks—it has been concluded that carbonic acid is not admitted into the lungs, but causes a spasmotic stricture of the epiglottis and kills in a way analogous to that of drowning—remarks—affair of the black hole of Calcutta—cases related.

315. *Sulphuretted hydrogen gas*, even when mixed with a large quantity of atmospheric air, a very powerful poison—abundantly exhaled from privies and from common sewers—when

the exposure has lasted but a short time the following are the

316. *Symptoms*—general uneasiness with nausea and vomiting--respiration irregular--pulse agitated--skin cold--general convulsions--muscles of the face and chest particularly affected--when long exposed to the gas, all power of motion and sensation lost--frothy saliva tinged with blood flows from the mouth--lips and face livid--eyes shut and devoid of brilliancy--pupil fixed and dilated--pulse small and frequent--respiration short and deficient and apparently convulsive--action of the heart disordered and violent--extremities relaxed--afterwards convulsions.

317. *Appearances on dissection* in one case--blood contained in the various cavities black and fluid--posterior part of the lungs gorged with black blood--the viscera exhaled the smell of putrid fish--several of the persons present at the dissection subsequently affected with lassitude and stupor, sleepiness, violent colic, &c.

318. *All the acid gases*--chlorine--nitrous acid gas--muriatic and sulphurous acid gases--ammoniacal gas belong to the class of deleterious gases--arsenuretted hydrogen also of the same class.

### *Drowning.*

319. *When people are found dead in the water* three questions may arise. 1. Whether they were drowned by accident or design? 2. Whe-

ther by their own act or the criminal interference of others? 3. Whether they were alive or already dead when submersed? Between the two latter cases we have to discriminate—the fact to be ascertained by examining the body—attention to be directed to two objects—the discovery of the usual marks of death by drowning and of indications to shew its having been caused by some other way—Erroneous opinions on this subject noticed.

320. *Practice of hanging those taken out of the water by the heels and of rolling them on casks, unphilosophical and dangerous.*

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321. *Appearances to be expected in those who have been drowned.* Externally, even after a short submersion—coldness, general paleness, a deeper hue than natural about the face—eyes staring—frothy appearance about the mouth and nostrils—tongue pushed forward. *On dissection* the appearances of the sanguiferous system the same as mentioned under suffocation—congestion of the blood about the right side of the heart and neighbouring vessels—congestion in the head—perhaps extravasations and lividity of the lungs—on cutting into the lungs a small quantity of water very frothy, and probably coloured with blood to be expected—this, however, not uniform throughout the rationale and remarks—when water is found in large quantity it must generally have passed in after death, the epiglottis permitting a small appearance

*When a person is thrown into any insipid salt water, there is a great notice drawn of the glottis.*

quantity only to pass during life—presence of frothy mucus strong evidence that the deceased was drowned—its absence, however, not conclusive that he was dead prior to submersion—If water be found in the stomach it is generally accidental and may enter during the individual's struggles—sometimes met with and sometimes not—some experiments on this subject related.

322. *Remarks on the buoyancy of human bodies*—a person thrown into water will first sink, but after gas has been evolved from putrefaction in the cavities of the body, he will rise to the surface—the custom of fixing weights to those consigned to the deep, to prevent their subsequent rising, not for making them sink in the first instance.

323. *If a body be found in the water* it may be of importance to ascertain how long it has lain there—no method by which this can be accurately done. Important to recollect that the animal body, by lying under water, becomes converted into *adipocire*—running water produces this conversion more rapidly—generally from four to six weeks required to effect this. Experiments on this subject related—cases related—remarks.

324. *Generally no great difficulty* in deciding whether a person has been submersed alive or thrown in after death—except when he had been a long time macerated—remarks.

325. *Fluid state of the blood* not an important

appearance in deciding whether the individual has been drowned—being met with in those killed by lightning, by certain poisons, &c.

326. *Dirt, sand, &c.* found under the nails or any substance found in the hand, likely to have been laid hold of in the water, an inducement to believe that the person died under water.

327. *If killed and thrown in after death,* wounds, bruises, &c. may be discovered—these with the want of appearances characteristic of death by drowning, enable us to give a proper opinion. Bear in mind, however, that serious injury may be sustained by falling against hard and sharp bodies—case related.

328. *If a person have been first poisoned and then thrown into the water* marks of poisoning will be perceptible. If previously strangled certain marks will be observable.

329. *Means of discrimination between the event of a person having been forced into the water by others, and that of having thrown himself in* not so certain. Some situations where there can be no clue to the truth except the evidence of witnesses—as when a person is suddenly thrown from a ship or boat. In other cases incidental circumstances clear up the matter—as the mark of footsteps, &c. about the margin of the water—the history of the individual—substances found grasped in the hands, &c. Cases related—remarks.

330. *A very short time under water sufficient to extinguish life—remarks on this subject—some extraordinary and incredible stories of long existence under water related.*

*Of Hanging.*

331. *Seldom an act of Homicide, generally of Suicide—remarks.*

332. *Appearances induced by hanging—discoloration and impressions upon the neck by the cord—lividity of the upper part of the body—distortion of countenance—swelling and projection of the eyes, which are sometimes suffused with blood—tongue sometimes injured by the jaws and thrust out of the mouth—the latter however dependant upon circumstances—cartilages of the larynx sometimes fractured—luxation of the vertebræ of the neck, occurring chiefly in heavy persons or those who have fallen from a height or where the weight of the body has been increased to hasten death—faeces, semen and urine often expelled—remarks.*

333. *Proximate cause of death, pressure on the brain—this confirmed by the sensation of those who have been half hung—remarks.*

334. *Q. Was the person suspended whilst alive, or had he been first previously killed in some other way and then placed in this situation to prevent suspicion? Remarks—where a body is found suspended and none of the signs of death by*

*"This discolouration takes place from the excretory process which only can occur during life—or at least whilst the circulation is going on in the capillaries."*

hanging discoverable, the presumption will be that the person was not alive when hung—poison to be suspected where there are no marks of external violence—if there be wounds or bruises, perplexity may arise as wounds have been inflicted, whilstt he person was actually suspended, by his own hands. Cases related—wounds may also be accidental—it has been suggested that a person, by violently swinging himself off, may break the rope and wound himself by falling upon articles of furniture, yet afterwards hang himself again—remarks--the perplexity most likely to arise is in cases of homicide where the person is first strangled and then hung—if there are two circles round the neck one lower and more discolored than the other, with marks of death by suffocation, such ought perhaps to be the conclusion - remarks.

335. *Was the person forcibly killed or did he hang himself?*?—except in certain cases very difficult to hang a man against his will, unless the situation be such that no interruption is likely to take place, or the assailants very numerous—in such cases, the means of discrimination must be, in addition to the state of the parts, the external circumstances—the character, &c. of the deceased—place in which the body was found—attendant marks of robbery, &c.—signs, or the absence of signs, of scuffle and resistance—if in the open air the state of the ground, and if in

an apartment the state of the furniture, whether in confusion--remarks--state of the hands and dress of the deceased may indicate the fact of resistance.

336. *People have been accidentally hung* generally through imprudence--cases and remarks.

337. *Attempts, made to prevent the death of criminals by opening the trachea, &c.* in which no professional man of character would choose to be concerned--remarks--cases of imperfect execution related.

338. *Cases of hanging related.*

### *Of Strangling.*

339. *Difference between this and hanging*—the former consisting in the subject's not being suspended—a more common mode of committing murder—much force used in tightening the cord, hence the mark very distinct.

340. *Appearances*—the external aspect of the body not differing much, if at all, from that of a hung subject—mark of the ligature generally forming a *horizontal* circle of discolouration round the neck—if the mark be not at the upper part of the neck, it is unquestionably a case of strangling. If the cord have been fixed after death the mark will be of the same colour as the rest of the body, though here and there a discolouration may appear—still the difference is striking—dislocation

of the vertebrae not to be expected, but there may be fracture of their processes and probably injury to the cartilages of the larynx.

341. *The same questions* to be investigated here as in cases of hanging—1. Was the deceased really strangled? or 2. Was the rope fastened round his neck after death?—remarks—cases related.

342. *Strangulation may be performed by the hand*—the only difference here being that instead of a circle round the neck as in case of ligature, the discolouration will be partial—the bruises will be of an indistinct form or the marks of fingers may be traced—cases related.

343. *On dissection* of those who have died of *manual strangulation* the usual appearances of this kind of death may not seem so conclusive as in other cases—the person having made continued resistance and the functions of respiration and circulation going on in some degree for a longer period than where at once interrupted, as in drowning, hanging, &c.—cases and remarks.

344. *Strangulation scarcely ever an accidental event*—a case of this kind, however, related.

### *Of Smothering.*

345. *Except in children a rare occurrence*, among these, however, not only a common accident but often perpetrated upon them as a crime—possible for an adult, in a state of intoxication

or great debility, to get into such a position as to prevent the passage of air to the lungs—not likely however to be resorted to in adults with a criminal intent—remarks—often happens from *overlaying children* as it is termed—manner in which “*overlaying*” may occur—cases related.

346. *Children have been smothered* by being folded up in a sort of turn-up bedstead used by the poorer classes—all these cases accidental.

347. *A mode of suicide by swallowing the tongue* noticed by authors as occurring amongst negroes—remarks.

348. *Suffocation by tumours or adventitious pressure on the larynx* by extraneous bodies.

349. *Inflammatory sore throat and hard substances in the œsophagus* have proved fatal in this manner.

350. *Where the thorax is so pressed upon* that the muscles of respiration cannot perform their office, a modification of smothering—cases and remarks.

351. *In inspecting the bodies of those who have been suffocated*, the practitioner must examine whether there existed any disease in or about the organs of respiration—He may be asked, 1. Are there no diseases which might produce appearances similar to those in the present instance? 2. Did you not discover any morbid appearances in those parts? 3. Did you search for any? 4. Might not some have existed capable of produc-

ing these appearances that escaped your observation?—concluding remarks.

352. *Treatment of Suffocation in general*—the patient to be conveyed into a warm room and if possible immersed in a warm bath—bloodletting to be carefully employed—friction with salt or warm flannels—stimulating fluids in a dilute state to be poured into the stomach by means of a tube—attempts to be made to inflate the lungs—apparatus for this purpose described—Oxygen gas—Galvanism—Electricity—Bronchotomy, &c. as means of resuscitation referred to—remarks.

#### OF WOUNDS AND BRUISES.

353. *Remarks*—by far the most common means of violent and accidental death.

354. *Wounds, incised—punctured—lacerated—contused and gun-shot.*

355. *A bruise or contusion*—may or may not be attended with more severe injury as fracture, &c.

356. *Wounds and bruises* more or less important, according to the parts in which they are situated—a tolerably accurate idea to be formed of the danger of these from the first—remarks.

357. *Wounds*, which would be of no importance to some, rendered fatal to others by a diversity of circumstances, internal as well as extraneous.

358. *We cannot always estimate from appearances during life the extent of injury sustained, and must therefore guard against erroneous prognosis--the practitioner to rely on the circumstances of the case before him--remarks and cases.*

359. *After wounds, &c. have healed up death sometimes takes place unexpectedly.*

360. *Remarks on the law of holding a person inflicting violence upon another, responsible for the consequences during a year and a day—a very unsatisfactory enactment—the intent now looked at—cases and remarks.*

361. *Duties of the practitioner in cases of injury by wounds, bruises, &c.—It will be expected that he should declare in what part of the body they may be seated—if about the head, over what bone—if about the abdomen, in what region, and if the investigation has been made *post mortem* through what organs they had passed, viscera, vessels, nerves, &c. describe the extent of injury and if necessarily fatal—deranged habits, unnatural structure of parts, &c. to be noted—Where a long period has elapsed between the receipt of the wound and the death of the person, caution requisite in giving a decisive opinion—necessary for an acquaintance with physiology, pathology, &c. Information to be given of the length, breadth, depth, figure, direction, &c. of a wound—whether incised, punc-*

tured or lacerated, &c. and if possible with what sort of a weapon inflicted—The surgeon to take care not to confound his own incisions *post mortem* with the original wound—cases related.

362. *When the ossa triquetra are large*, an ill-informed individual might describe them as fractures—generally met with in the lambdoidal suture—blunders related—remarks. Preserve the parts as much as possible *in situ*.

363. *The most perplexing cases* are those where the effects of injuries are not immediately fatal: or rather where a fatal termination is laid to the account of injuries inflicted a considerable time before: or where the effects of these are complicated with subsequent disease. *Another difficult case*—where persons in habits of intemperance engage in brawls, receive injuries and, after an uncertain period, die. The question arises whether the drunkenness or the blows caused the loss of life—remarks on opinions on this subject—cases related.

364. *When a dead body is found with wounds or contusions* the questions are—1. Were they inflicted during life? 2. Were they the cause of death? and if so, whether they are to be charged to the account of suicide or of homicide?

365. *In discriminating whether a wound has been inflicted during life or after death*, the presence or absence of inflammatory signs will be

sufficient where life has not been suddenly taken away. If wounds pierce the cavities of the body, we must look for internal hemorrhage and in all cases of death from these injuries there must be marks of the loss of blood—on the contrary, if the death have ensued from some other cause and the person be subsequently wounded, the want of hemorrhage internally and of signs of it externally will be evident—Uncertainty has arisen in the case of contusions from an alleged similarity in the appearance of discolorations produced before and those which occur after death—Hence a distinction has been made into *Ecchymosis* and *sugillations*.

366. *Ecchymosis occurs in the living body only*—is a soft, dark coloured swelling, produced by the effusion of blood into the cellular substance from rupture of small vessels.

367. *Sugillation also an effusion of blood*, but arises from intrinsic causes—as from incipient putrefaction—common in dead bodies—remarks—sugillations occur chiefly in depending parts of the body where pressure has taken place in the latter stages of disease—remarks.

### *Wounds, &c. of the Head.*

368. *Remarks.*

369. *Wounds of the scalp*—mere incised wounds not necessarily serious—the same may be said of bruises—remarks—the scalp may be

injured in various ways—remarks. *In estimating the danger of such injuries, or the probability of their having caused a person's death, several considerations to be taken into account, as the nature of the injury—the state of the person's health and constitution—the degree of attention and skill that have been professionally paid, &c.—* remarks.

370. *Wounds where the cranium is involved—* remarks—on *fissure* and *fracture*—a simple fracture not necessarily an event of great importance—remarks. Fractures of the skull, generally, however, followed by a severe train of symptoms, and frequently by death—are sometimes at a distance from the part which receives the injury. The question, whether a fracture has occurred before the patient's death, sometimes difficult to decide—if it have taken place immediately before, coagulated blood will be found upon the bone and in the fissures—if he had survived for sometime, there will be marks of inflammation, and perhaps pus in contact with the skull, but if the fracture have been produced in making the examination, the blood in the fracture will not be coagulated nor will there be effusions round the portions.

371. *Wounds of parts within the cranium—* remarks on fractures as likely to injure the brain or its membranes. Injuries to the brain may consist in pressure or in wounds—pressure

occasioned by depression of the skull, by extraneous bodies, by extravasated blood, effusions of serum, formation of pus, tumours in its various parts, &c.—remarks In complicated cases of wounds, the degree of violence inflicted, the part in which they are received, the immediate symptoms, &c. will enable us to give our prognosis—where death ensues, the extent of lesion discovered will shew how far the event has been dependent on the injury. If effusion of blood be found between the dura mater and skull and a bruise of the scalp corresponds to the part, we may conclude that it has been caused by the blow—violent blows sometimes received upon the head, without causing any apparent wound or leaving any visible marks of injury—cases related.

372. *Concussion of the brain*, a frequent attendant on great injury to the head—deserving of great attention— remarks—may be produced by a fall from a height upon the feet or breech—cases related—remarks.

373. *Most important that the practitioner* should be acquainted with the history of such events, especially as death is frequently induced at distant periods from that of the infliction of violence, and when the real cause might be overlooked—cases related.

374. *Remarks*—the trephine never to be applied except for the removal of *existing* symptoms.

375. *Certain injuries done to the face* belong to this division of wounds and bruises—mortal wounds have been inflicted through the face on the contents of the cranium - cases related.

376. *Wounds, &c. of the neck*—of the carotid arteries, internal jugular veins, spinal marrow, and generally of the œsophagus necessarily fatal. Assassination in this manner frequent, and still more so suicide, mere division of the trachea not necessarily fatal--remarks--cases related.

377. *Dislocation of the neck* may be the effect of accident and is not rare--has been done thro' criminal design.

378. *Wounds piercing the vertebræ* or passing between them are fatal—remarks.

379. *Wounds, &c. of the thorax*--remarks--wounds penetrating the cavity, even without injuring any of the contents may give rise to serious consequences--remarks. *Fracture of a rib*, though often a simple case, sometimes attended by severe symptoms--the fractured parts being driven in upon the lungs, emphysema, &c.

380. *An injury of the thorax* extending to the lungs, heart, blood vessels, thoracic duct, œsophagus, nerves, &c. always of the most serious nature, and some necessarily fatal.

381. *Wounds of the great vessels* necessarily mortal--as well as those of the heart--exceptions so unusual as scarcely to be worth mention.

382. *Wounds of the pericardium* not necessari-

ly fatal--the same may be said of *wounds of the lungs*--remarks--also of the *thoracic duct*--remarks--of the *œsophagus* must be of the greatest consequence--cases related--concluding observations.

383. *wounds, &c. of the abdomen*--remarks--wounds of the abdominal viscera pregnant with the greatest danger--remarks and cases. The solid viscera liable to laceration where no wound has been inflicted in the parietes of the abdomen--cases related--perplexity may arise, when there is question of previous disease, in cases of injury--cases related.

384. *Blows on the body without wounds*, have frequently caused death--cases related--where a blow given in the region of the stomach causes instant death without any signs of the mode being visible, death considered to have been produced by the sudden shock of respiration through the intimate connection of the 8th pair of nerves.

385. *Large vessels of the abdomen* often ruptured by external violence--cases and remarks.

386. *Wounds of the pelvic viscera*--of the bladder, not necessarily fatal, as is evidenced by the success of the operation for lithotomy--always dangerous, however, as well as those of the uterus--if this organ be impregnated the danger is of course increased. Wounds of the testicles very dangerous as well as those of the penis--

may prove fatal from hemorrhage—the removal of the parts of generation in the male has been resorted to as a means of suicide as well as homicide—cases related.

387. *wounds of the extremities*—remarks—*compound fractures* always dangerous, as well as *fracture in or near the articulations*—wounds of *tendons* tedious, &c. of *nerves* sometimes followed by alarming symptoms—of *arteries* and *veins* not dangerous if timely assistance be afforded, otherwise they produce death—of the *articulations* always to be dreaded remarks in conclusion.

388. *Gun-shot wounds* have some peculiarities—their occurrence rare in ordinary life—different from wounds made by cutting instruments—remarks—our observations restricted to the smaller kinds of shot, as musket or pistol balls, slugs, small shot, stones, hard peas, &c. especially the first, which will exemplify the others. Danger to be estimated from the circumstances regulating that from wounds, bruises, &c. and as regards the part of the body in which the wound may have been inflicted, the constitution of the patient, &c. &c.

389. *Laws regarding murder and maiming*—of Virginia—New York—Connecticut—New Jersey—New Hampshire—Massachusetts—Rhode-Island—Pennsylvania—Vermont, Delaware, &c.

## OF SUICIDE.

390. *Remarks*—chiefly with the physical circumstances that we have to do in such cases.

391. *Some of the species of violent death* not the probable means to be resorted to by a suicide—e. g. wilful exposure to noxious vapours—*remarks*—simplicity of means, readiness of access to them and certainty as to the result, considerations which decide the individual who lays violent hands upon himself—some exceptions to this—*remarks*.

392. *The question will be in the great majority of cases* between homicide and suicide.

393. *With regard to poisons* concurrent circumstances must be taken into account, as the mental state of the deceased, &c. previous to death. Where poison has been spontaneously swallowed, remains of the matter made use of more likely to be found—*remarks*—cases referred to—if on opening a body pieces of *solid* arsenic be found in the stomach the presumption is that the person swallowed them of his own free will—*remarks*.

394. *Circumstances* under which persons have been occasionally found drowned have indicated the death to have been voluntary—some have been suffocated in water so shallow as to cover no more than the face—if a person be taken out of water tied hand and foot, there can be little

doubt that he was forced into that situation—exceptions referred to—remarks.

395. *In the majority of cases* where persons have been privately *hanged* it has been in the way of suicide—this last conclusion will be encouraged if there be no marks of previous resistance, nor disorder among surrounding objects—if the situation be public—if, near the body, the means be found by which the deceased might have reached the place to which the cord is fastened—if the body touch more or less the ground and there be no manifestations of any other means of death there can be little doubt as to self-murder—remarks and cases.

396. *Strangulation can hardly be considered* a mode of taking away life within the power of the individual himself—cases, however, related—nor can a man *manually smother* himself, and if the case of *choking* by doubling back the tongue be admitted, it cannot, except in infants, be imagined to be done by another person—if *foreign bodies* be found in the trachea or œsophagus it is probable that disease or accident has placed them there.

397. *Few wounds which one person can inflict upon another* that may not be accomplished by an individual on himself—remarks and exceptions.

398. *Fire-arms and cutting instruments applied to the throat* the most common mechanical means

of suicide—remarks and cases—discoloration of the fingers from the combustion of the powder in the pan, a mark of self-shooting—remarks.

399. *Cases of suicide related—remarks.*

PROLICIDE.

400. *Admits of two divisions, fæticide or criminal abortion and infanticide or the destruction of the new born infant.*

*Fæticide or criminal abortion.*

401. *Abortion or miscarriage* the separation of the immature fœtus from the womb of the mother—pregnant women very liable to it—fæticide is also often criminally attempted—for whatever end resorted to highly criminal—known only practically here where there has been illegitimate intercourse.

402. *Law of England on this subject—remarks.*

403. *Increment of the embryo*—at the end of the seventh month capable of being reared—consideration of abortion cannot therefore be carried beyond the 7th month—a general fact that under the 5th month, no fœtus can be born alive—from the 5th to the 7th it may, but cannot in general maintain existence—these termed in French *non viable* or *immature*—these born between the 7th and 9th month, which may be

\* The law of Bengal makes persons who do any thing by advice to destroy a quick child (as after an abortion), liable to imprisonment for one year.

reared called *premature*—a child carried to the full period is *mature*—exceptions mentioned—remarks.

404. *Observations on quickening*—instead of marking the period at which the fœtus becomes endowed with humanity, is but the sign of the growth of the body to a certain pitch, and of its possessing greater strength—commonly occurs about the end of the 4th month, when the uterus rises out of the cavity of the pelvis—remarks.

405. *Phenomena of abortion*—occurs naturally most frequently between the commencement of the 2d and end of the 3d month—remarks on *Emmenagogues, &c*—abortion generally injurious to health—*abortives* highly dangerous to the mother—cannot act on the uterus except through the general system—frequent instances of death from their administration—remarks—*causes of abortion* numerous—sometimes constitutional—remarks. The exciting causes may exist in the mother or fœtus—in the former may be reckoned acute diseases—mental emotions—severe exercise, dancing, riding over rough roads, falls—ardent spirits, strong purgatives, blows on the abdomen, coughing, retching, &c. &c.—all these may occur without any culpability.

406. *In procuring abortion* the female may be either an accomplice or seduced into acquiescence under false pretences—or unconscious of

the attempt made upon her—remarks in favor of the mother—before quickening she may not believe herself to be pregnant—may be deceived to take medicines in the persuasion that she labors under a natural disorder—remarks—certain articles generally given for producing abortion, as *savine, colocynth, &c.*—remarks.

407. *Appearance of the ovum* at the usual period of natural abortion—*moles*—sometimes occur in females who never had any carnal commerce—give rise to symptoms resembling those of pregnancy and when thrown off have the appearance of miscarriage.

408. *The longer abortion is delayed* the more difficult of concealment will it be and the nearer allied to labor will be the symptoms.

409. *Some substances taken to procure abortion* are absolute poisons and others have acted as such from the largeness of the dose. The fact of having administered certain drugs to women with child may be the only article of accusation against a prisoner—the intent being deducible from the reputed powers of the substance administered—by the law of some countries the offence rendered more heinous, according to the period of pregnancy at which the attempt is made.

410. *The duty of the medical Jurist* in a case of abortion, first to ascertain the reality of the event, and secondly, whether it has been caused

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organized.*

by natural means or by improper interference. If abortion be going on, the woman will be in a state of suffering, but as it is possible it may take place without exciting much uneasiness, her actual situation must be inquired into. *Signs*—a bloody discharge from the vagina—this to be examined, as the ovum may be contained in the coagula which are often passed—the vagina is relaxed and dilated—the labia enlarged and soft—the os uteri open: if there be pains they will come on in paroxysms. If pregnancy have been considerably advanced, there will be a sudden disappearance of previous abdominal enlargement—signs of milk in the breast—flaccidity and wrinkling of the surface of the abdomen, &c. &c. If abortion have taken place some time before, it can only be proved by circumstantial evidence, as of pregnancy having previously existed—actual examination of no use after the lapse of a fortnight, the parts having returned to their usual state—the greater the developement of the fœtus of course the greater the displacement of the parts of the mother and the longer the time required for their return to their ordinary condition--the difference between examination at the time of abortion and afterwards is, that during abortion we may come to absolute certainty by finding the ovum and in the latter we must rely on the traces alone—if the woman be dead, more information

to be obtained by dissection as mentioned under *Pregnancy*.

411. *In discriminating accidental from criminal abortion* we must be guided in some degree by circumstances—as whether the pregnancy was legitimate--by the fact of concealment—or on the contrary if there was complaint and resort to medical aid when abortion commenced—remarks.

412. *Means used as abortives classed into two kinds*--those which act through the system of the mother and those applied at once to the uterus—the former consisting chiefly of medicinal substances—the latter of mechanical—rationale of the action of *abortives*, so called, as previously explained of Emmenagogues—the parent has generally suffered much from the shock and sometimes died—the intent in the administration might be only to favor the return of the menstrual discharge, doubt existing on the part of the female as to impregnation--this is a distinction, however, which it is difficult to establish—we must bear in mind that an ignorant woman may be deceived by crafty persons to assist in the nefarious attempt.

413. *The practitioner should be aware of the drugs usually administered as abortives—remarks.*

414. *The savine* affirmed, when given in sufficient quantity, to produce hemorrhage from the

uterus and separation of the ovum--these local effects resulting from a dangerous attack on the general system --cases referred to.

415. *The Colocynth* in its effects is said to resemble the Savine

416. *Preparations of turpentine, emetics and purgatives in general, bleeding, ergot of rye, mercury, diuretics, and emmenagogues in general, &c.* when largely used, resorted to for the same purpose--remarks.

417. *Experience having shewn that accidental injuries and violent exertions have often produced miscarriage, the woman has been exposed to accidents and subjected to violent treatment--cases related.*

418. *Mechanical irritation applied to the uterus the most successful means of procuring a abortion--this is done with or without instruments --cases related.*

419. *The practitioner fully warranted, on every consideration, in cases of such deformity of the pelvis as cannot allow the passage of the head of a full grown fœtus, in inducing premature delivery, as the great chance of saving the lives of the mother and child.*

420. *Remarks in conclusion.*

### *Infanticide.*

421. *Regards the destruction of the child after it has been born and attained such a degree of*

developement as to be able to maintain its existence under ordinary circumstances--remarks--although many cases of unfounded accusation occur, the crime is of frequent occurrence--remarks--frequently the result of insanity, though this is rarely allowed--remarks.

422. *Concealment of birth a frequent occurrence* *of this is  
caused by  
impersonat-  
ing & diff-  
ering in the  
diff. states.*  
--in such cases we ought to surmise the worst--very possible, however, that a female may be delivered in solitude, and yet conceal an illegitimate and dead child without any criminal intent--remarks and cases.

423. *Relations of this subject to the duties of the medical practitioner very important--rather a difficult and troublesome investigation, but of the utmost consequence to be carefully studied--* remarks.

424. *In a case of alleged infanticide it may be necessary to establish by the evidence of professional men, both that a child has been born alive and that the woman has been delivered.*

425. *Important to ascertain that the fœtus has been so long carried in the uterus as to be capable of living when separated from it--no child born after the termination of the 7th month should weigh less than five pounds avoirdupois or be less than fifteen inches in length--less than these dimensions mere exceptions to the general rule--* remarks. In the immature fœtus, skin very red--redness most conspicuous in the palms

*Crying & the establishment of the circulation  
are the best proofs of its being born alive.  
On a thing is not enough - for the child  
may breath before it is actually born.*

of the hands, soles of the feet, &c. Head proportionably large - its bones very soft and yielding - fontanelles widely open - supply of hair on the scalp scanty and light coloured eyes generally closed by the membrana pupillaris - iris not perfectly formed - In the male, between the 7th and 8th month, the testes in progress towards the scrotum, at the end of the 7th not being usually found there - scrotum generally red - in the female the external parts protuberant - the clitoris proportionably large, the heart disproportionately so, without much difference of capacity between the auricles and ventricles - thymus gland large, &c. &c. In the abdomen, the liver will be found very large and approaching the umbilicus and if there be fluid in the gall-bladder it will be of an aqueous consistence and nearly transparent, &c. &c. - remarks on some differences observed in the brain at different stages of fatal existence.

426. *Chaussier's scale of admeasurement*, in the different ages of the fœtus, noticed - at the full period the middle of the body corresponds exactly with the umbilicus - at the 8th month it is three quarters of an inch or an inch higher - at the 7th month it approaches still nearer the sternum and, at the 6th, falls exactly at the lower extremity of that bone; hence, if CHAUSSIER's views be accurate, when the middle of the body falls at the cartilago ensiformis we

might conclude that the foetus is under the 7th month and consequently not reparable.

427. *Mode of ascertaining the vitality of a new born infant--remarks--Problems for solution are; whether the child came into the world alive ? and if so, what has been the manner of its death ?*

428. *A foetus may die several weeks before the full term and yet be carried to the 9th month--remarks--the cuticle separates readily--body is flaccid--sugillations<sup>x</sup> are observable and there are sanguineous effusions into the cavities--frequently putrid smell, &c. &c.*

429. *It is by evidence as to circulation and respiration that we must decide in a dubious case whether a child has or has not been born alive.*

430. *Fœtal circulation explained--the most striking peculiarity the transmission of blood to the left side of the heart without passing through the lungs.*

431. *Before distension by air in respiration the lungs collapsed and dense, receiving no more blood than what is necessary for their nutriment--they consequently furnish evidence whether the child was born alive or not--where respiration has not taken place they will be of a dark colour like liver--do not fill the cavities of the thorax--sink in water--on cutting into them no air is emitted--no hemorrhage follows--the foramen ovale in such a case open--the ductus arteriosus pervious and containing blood--diaphragm*

*Sugillations <sup>fig. 101. p. 85</sup> effusions of fluid on the surface of the body - widely diffused & not coagulated, owing to dead blood being not coagulable.*

more arched—the canalis venosus like the ductus arteriosus, and blood in the umbilical vein—urinary bladder generally containing urine, and meconium in the intestines—discolorations resembling sugillations, &c. *I putrid osseum.*

432. *If the child has been born alive* these organs have undergone important changes—the color of the lungs is changed to a florid red and they fill the thorax and cover the pericardium—they are light and spongy and float on water—on cutting into them the escape of the air in the air-cells causes a crepitus and a bloody fluid exudes—there is a closure or an approach to closure in the foramen ovale—the canalis arteriosus is empty as well as the canalis venosus—the pulmonary vessels are enlarged—the diaphragm is less convex—the urinary bladder probably empty, the intestines more or less freed from meconium—not much stress to be laid on ecchymosis.

433. *There is no difference*, according to BRCHAT between the arterial and venous blood of the foetus—there must therefore be a difference between the blood of a child that has died in the womb and one which has respiration—this considered by Dr. BECK as a criterion by which to determine whether it was possessed of life after birth—remarks—not very available in practice—remarks.

*Of the Docimasia pulmonaris or proof to be drawn from the Lungs.*

434. *Of the hydrostatic test*—founded on the difference in specific gravity between lungs that have respiration and those that have not been distended with air—remarks—the failure of this test generally referrible to want of ability or of inclination to undertake the experiment as it ought to be performed.

435. *Principal objections that have been brought against drawing conclusions from the sinking or swimming of lungs in the water or against the Hydrostatic test as follows.* It has been alleged,

1. *That the infant may respire before it is born; and yet not come into the world alive—in which case there will be dilatation and buoyancy of the lungs—* Children recorded not only to have breathed but to have cried in utero—cases related—remarks—should a child respire in utero a charge of concealed birth, and of infanticide seems by that event to be guarded against—after the head has passed the os uteri more reason to think that respiration may be attempted and partially performed before the child is born and even whilst the head is within the external parts—remarks. To plead in defence of an allegation of infanticide, that the child died after its head was born can hardly be conceived; a woman accused of the crime not likely to venture to draw so nice a distinc-

*The head  
may be born  
in the water  
of the shoulder  
or on shoulder  
the child may  
strike water  
it does  
child may  
die—  
infinitely*

tion, besides it is an occurrence but barely possible--remarks.

2. *Though a child be still-born, air may be artificially conveyed into the lungs*--No doubt that air might be introduced in this manner, as in the case of a woman delivered privately of a still-born bastard, who may do all in her power to resuscitate the infant by blowing air through the mouth or nostrils--or it may be performed thro' malice on the part of another person--the difficulty is in knowing its origin --difficult for a woman to effect it under the circumstances mentioned--remarks--when air has been so conveyed authors have mentioned a flatness of the chest, absence of crepitation and hemorrhage in cutting into the lungs, the lungs very partially distended and it has been remarked that all the air may be squeezed out again and the lungs restored to their original density when they will sink in water, whilst no pressure will cause those which have respired to sink to the bottom of a vessel of water--distention of the lungs after death can never increase their absolute weight which respiration must necessarily do.

3. *The lungs may be rendered specifically lighter than water by the evolution of air in the course of the putrefactive process*--In such a case the child must have been sometime dead, either in the uterus or a sufficient time since its birth may have elapsed to allow of putrefaction be-

fore examination—should such emphysema take place the lungs would be rendered specifically lighter—cases and experiments related. In putrid lungs the septic process is from without inwards, the air evolved lying in bubbles under the investing membrane—in this state if the lungs be squeezed hard, the bubbles will escape and the lungs become heavier than water. The lungs, however, resist putrefaction longer than any other part of the body excepting the bones—remarks.

4. *The lungs of children born alive, after complete respiration, sometimes sink in water*—this can only be where there is disease—which is rare in newborn children—remarks—experiment not conclusive or complete until the lungs have been cut to pieces and tried in that manner—remarks.

5. *In sound lungs one will sometimes sink whilst the other will float*—in this state there can be but partial inflation of one, the other remaining collapsed—remarks—the air enters the right lung sooner than the left—rationale—respiration not completely performed on the first effort but is a process gradually advancing to perfection, and more or less protracted, according to the degree of vigour of which the infant is possessed. Life may be maintained under a very imperfect state of respiration—cases related—in this point of view the practice of trying the lungs by portions enforced.

6. *Children may be born alive and exist a while without respiring at all*—many children, born in a state of asphyxia, subsequently recover, hence it has been alleged that if even the inflation and buoyancy of the lungs should be admitted as proof that the child was born alive, their being collapsed and sinking in water is no proof that the infant was still-born—remarks.

436. *The Hydrostatic test* is only one link in the chain of evidence—the conclusion to be drawn from a concurrence of many facts—when unable to come to any conclusion it will be our duty to confess it—remarks—it is however our main test and with due precaution may be depended upon.

437. *Ploucquet's, or the Static test*—remarks—founded on the *absolute weight* of the lungs being increased—rationale—after respiration the whole of the blood passing through the lungs, they are filled with blood, their vessels enlarged and they are increased in *absolute weight*—remarks.

438. *Ploucquet asserts from experiments* that the weight of the lungs of a full grown foetus, which never respired was, to that of its whole body, as 1 to 70. Whilst in others after respiration had been established, it was as 1 to 35 or doubled—remarks.

439. *Ploncquet's experiments too few*—subsequent experiments from their discrepancy exhib-

bited the difficulty of establishing any standard—remarks—important that the practitioner should examine it for himself—remarks.

440. *To judge impartially of this test*, we must be satisfied that the child has performed the function of respiration, with ordinary vigour, for a certain time or that it was born quite dead—that it was above the 7th month—first weighing the whole body and then separating the lungs carefully and weighing them alone—remarks.

441. *Objections, with Ploucquet's answers—*

1. Whether a constant ratio of the weight of the lungs to that of the whole body can be obtained?  
Ans. That a mathematical ratio may be established on the result of numerous experiments, from which a *mean* may be obtained—and with the exception of monsters, aberrations do not so frequently occur in new-born children as in adults—remarks.
2. The difficulty of establishing the experiment in children, who do not in point of weight, answer the usual description of full grown infants.  
Ans. From numerous experiments a scale of proportions might be made—the lungs are less liable to variation in point of size, weight, &c. than the rest of the body—accurate and numerous experiments would enable a conclusion to be deduced from weighing them alone—Thus, the ordinary medium weight of the lungs of a mature fœtus that never breathed, being two ounces, should the lungs weigh twice as

much we may declare that respiration has taken place.

3. *If the child died of hemorrhage, loss of blood would alter the ratio.* A. The lungs would still bear a greater proportionate weight—remarks—the loss of urine and meconium to be noted in our estimate of the weight of the body.

4. *Dropsy of the body or of the lungs themselves, and putridity may destroy the ratio.* A. Allowing the occurrence of such cases, they must be classed amongst those that cannot be cleared up by physiological proofs.

5. *Nodes, scirrhus and mucus congested in the lungs will augment their weight.* A. These are discoverable and they form cases to which the test is not to be considered applicable.

6. *The lungs of a non-respiring fœtus might become equal in weight to that of a fœtus which has breathed, by a congestion of blood; so that, if inflated, by swimming in water, it might not differ much from one that has respired.* A. The existence of the foramen ovale and ductus arteriosus in a fœtus that has never respired must prevent a congestion of blood in the lungs, by the easy means they offer of escape—cases related—remarks.

442. *After all, experience alone can enable us to appreciate the truth of Plouquet's opinions.*

443. *Daniel's test:* As the process of respiration increases the circumference of the thorax

and alters its shape and capacity, Dr. DANIEL concluded, that a scale of admeasurement might be effected—this would be somewhat unsatisfactory however—the aspect of the thoracic cavity, notwithstanding, not to be neglected—but it can only be esteemed a corroborative proof—remarks.

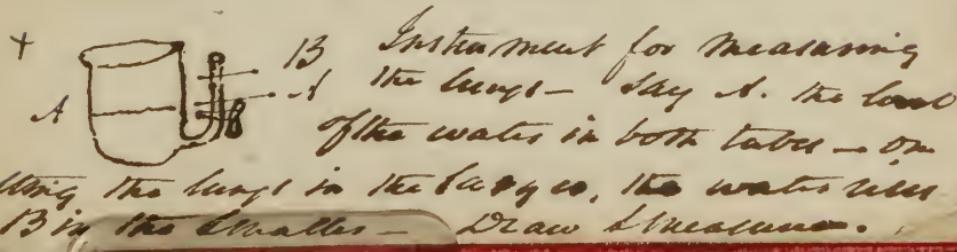
444. *Daniel's appendix to the test of Ploucquet* consists, in adding to the calculation of the increase of the weight of the lungs, a similar process with regard to their bulk—after weighing these organs, they are to be placed in water whilst still in the balance, and by means of a graduated scale, attached to the inner surface of the vessel, the quantity of fluid they displace is to be noted—an experiment easily performed and a proper adjunct to the others—remarks.

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445. *Lastly, the only real objections to the test of Ploucquet* are the want of a fixed proportion between the absolute weight of the lungs and that of the whole body and the inference that, if there be such proportion, it is different from that laid down by PLOUCQUET.

446. *Experiments of CHAUSSIER, SCHMITT, LECLERC, DUPUYTREN, BECK, &c.*—remarks.

447. *Of the means of destroying the new-born infant*—remarks—in the strict view of the subject, if a female should wilfully incur the danger of solitary confinement, criminality ought to be laid to her charge, though there be no ground for insinuating that any positive injury was in-



tended or inflicted on a child found dead under such circumstances--remarks.

448. *Infanticide by omission.* 1. *After the head is born* if not removed the child may perish by smothering, the mouth being turned towards the bed, or by being drowned in the discharge of blood following its expulsion—a portion of the membranes may be over the face—the mouth and nostrils may be choked up by sordes, &c.—the umbilical cord may pass round the neck and cause strangulation, &c.

2. *Death may take place from the umbilical cord not being tied*—remarks—a ligature ought in all cases to be applied—it must not however be concluded from the mere circumstance of no ligature being found, that the child has died precisely from that cause. In such a case, however, should there be no other cause of death discoverable and the whole circulating system be devoid of blood, the right side of the heart and veins being usually found to contain it after death, we cannot but conclude that the infant has died in this way, from hemorrhage—on the other hand if blood be found in those vessels and cavities some other cause of death must be sought for.

3. *An infant may perish from neglect in not keeping it properly warm.* Signs of having perished in this manner—remarks—an infant can scarcely be supposed to die of cold except in an exposed situation.

4. It may perish from want of nutriment—a case, however, not likely to occur—remarks.

449. *Infanticide by commission*—new-born infants liable to every species of violent death that can be inflicted upon older persons—remarks—some modifications of injurious interference to which the foetus is exposed that cannot be practised upon others, e. g. it may be killed

1. *By premature ligature of the umbilical cord*—~~X~~  
the original source of vital support being in some cases cut off, before the new one has been established—not, however, a common case.

2. *Suffocation is not unlikely to be resorted to*—the mere application of the hand to the face will be sufficient to destroy life—if done after the child has been permitted to breathe, we shall find congestion in the pulmonary vessels, right side of the heart, &c. Children often smothered by being placed under bedding, hay or chaff, mud, earth, sand, &c. when we may probably detect some particles in the mouth or nostrils—have been suffocated also by exposure to noxious inhalation as the fumes of burning sulphur and been choked by doubling back the tongue—may be killed by drowning, hanging and strangling in the modes already mentioned—have also often perished in privies.

3. *A method has sometimes been resorted to of thrusting a long and fine wire through the fontanelles, &c. or into the spinal marrow and heart*—

This should not be done, until breathing fully established; but if the circulation continues languid, it may be a question whether it should not cut the cord direct to warmth, artif. circ. respiration &c.

cases related—careful examination will detect this—fractures of the skull or luxations of the cervical vertebræ will be evidence of infanticide.

450. *Practical application*—a careful account to be taken of the adventitious circumstances and appearances about the child, especially if in an exposed situation, and of every appearance as discovered—better to have two medical gentlemen where practicable, the one writing, whilst the other dissects—the nature of the situation, state of the body as to blood or filth to be noted—remarks—let the fœtus be washed—the head shaved—the whole body weighed, measured, &c.—note whether it be sound or putrefied, and in what parts—whether there be appearance of its having died in utero—the surface of the body to be attentively examined to detect any ecchymoses or wounds—ascertain whether the cervical vertebræ have been luxated—if any external indications of this nature, the parts beneath to be carefully examined—note whether sugillation be present—remarks—take care not to cause any effusion of blood—the state of the umbilical cord to be examined—the spine to be laid open and inspected to find whether there be any wound, laceration or effusion of blood about the spinal marrow. Mode of inspecting the cavities of the mouth, pharynx, œsophagus, thorax, abdomen, &c., described—the position of the tongue to be

observed, and the contents of the mouth, if any, to be recorded—in the larynx, the existence of fluid, or the contrary, to be noted—a general view to be taken of the cavities of the thorax and abdomen—see whether the diaphragm be more arched or not—how much of the thorax is occupied by the lungs, their colour—general appearance of the liver also to be noticed—the urinary bladder as regards its state of distention or emptiness, &c. &c. the presence of fluids in, and of inflammation, &c. of the abdominal contents—the thorax the most important object of our researches—ascertain whether there be any adhesions—take out the lungs, separating them from the trachea, as low as convenient, preserving the heart and tying the aorta and vena cava—the lungs to be sponged clean if required, and their consistence, colour, &c. noted as well as if any part be morbid or putrefied—they are then to be carefully weighed. When put in water it must be remarked whether they sink or swim, whether one portion sinks whilst others swim, &c.—place a ligature on the pulmonary vessels, separate the heart, keeping it for further inspection—weigh the *lungs* alone and place them again in water, &c. noting the appearances—DANIEL's appendix to PLOUCQUET's test may be then tried—simplification of the experiment recommended—separate the right lung from the left and try them in water separately—any difference in

their buoyancy to be noted—any variation from the natural formation of the lungs to be noticed. Note whether there be a crepitating noise or appearance of hemorrhage when the lungs are cut into. Each lung being cut in pieces is to be tried in water and any difference with regard to buoyancy to be carefully noted--then to be pressed as forcibly as possible in the hand or in a towel and again tried in water. The heart must then be inspected. The ductus arteriosus laid open and notice taken whether it contains blood or is empty—the auricles and ventricles must be examined and congestion there will excite suspicion of death by suffocation—the state of the foramen ovale must be noted.

451. *Recapitulation*.—If the diaphragm be very convex upwards, the lungs of a dark red colour not filling the cavity of the thorax, not covering the pericardium, of a firm consistence, if they sink in water, emit no sound when cut into, and effuse no blood—when along with these circumstances, blood is discovered in the ductus arteriosus and the foramen ovale is open, the conclusion must be that respiration has never been performed. On the other hand, if the lungs fill the cavity of the chest, are of a light red colour, elastic to the touch, swim high in water, make a crepitating noise, and pour out florid blood on being cut into, there is strong evidence that breathing has taken place, and if the absolute

weight of the lungs be increased, the evidence will be very strong—remarks.

452. *If it be discovered that breathing has been performed* the investigation must be pursued to discover the cause of death, as in grown up individuals under suspicious circumstances. The contents of the stomach to be attended to—for the purpose of discovering whether death has occurred from submersion, poison, &c.—in laying open the intestinal canal the presence or absence of the meconium to be always noted—remarks—the state of the urinary bladder, as to fulness or emptiness, to be also taken into account amongst the concurrent evidence. In opening the head we may discover the cause of death, if by fracture, puncture, &c.—attention to be given to morbid appearances, &c.—remarks on the mode of inspecting the *Brain*, &c.

453. *Considerations in favour of the accused.*

454. *Unexpected and rapid labour* by no means an unfrequent occurrence—remarks—cases of this nature related. The skull may be fractured by a fall from a height, under such circumstances. Hence the possibility of death to the child without any criminality on the part of the mother—by a fall from a height, the skull may be fractured, the umbilical cord ruptured, &c.—remarks—impossible to decide by an examination of the mother whether delivery has been rapid or not.

455. *A woman may undergo protracted labour*

*in solitude*, and the child may perish—in such cases may be observed as the mere result of such labor, discolorations especially about the head, which must not be confounded with voluntary injury: Skull stated to have been fractured by violence of labour—doubtful—other ways in which the death of a child may be occasioned by protracted labours—of monstrosities, malformations,—breech cases, &c. &c.

456. *By some conceived warrantable to destroy defective or monstrous infants*, whose continued existence would be impossible, or their death desirable—idea unwarrantable—remarks.

457. *Possible for a woman to endeavour to resuscitate her still-born child* by breathing into the lungs—such a discovery will discourage the idea of criminality.

458. *Importance attached to the fact of the mother having, or not having made preparations for the care of her offspring*—remarks—cases related—such preparations, however, might be made by criminals, who were aware of the importance attached to it without any intention of using them, but this not probable—remarks—cases related—other *favorable circumstances*—the not attempting to secrete the proofs of delivery if easy of execution—the woman having been careful of herself during pregnancy, and not having taken improper drugs.

459. *Of supposed accomplices*—remarks—the

only point capable of being ascertained by medico-legal inquiry is whether violence has been inflicted during the life of the infant, or not.

460. *Lastly, the practitioner may be called upon to prove whether the accused has really borne a child—see *Pregnancy*.*

461. *Laws on the question of *Prolicide*—of Virginia—New York—Massachusetts—Vermont—Connecticut—New Jersey—New Hampshire—Pennsylvania—Rhode Island—Delaware, &c.*

#### **QUESTIONS FROM INJURIES DONE TO THE PERSON NOT LEADING TO THE EXTINCTION OF LIFE.**

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*Of Maiming or mutilation—see wounds, &c.*

*Of Surgical operations.*

462. *Remarks—unnecessarily operating might be a ground of civil action, but the proofs difficult—remarks.*

463. *Where through neglect or mismanagement on the part of the surgeon, perpetual disabilities &c. arise, the surgeon liable—cases of this nature related.*

464. *Some surgical, and obstetrical errors enumerated—cases related.*

*Of Corporeal Punishment.*

465. *Justiciary interference here but rarely called for—remarks.*

466. *A husband is countenanced by the law in chastising his wife, when done upon sufficient grounds and in a certain manner—remarks.*

467. *Necessary chastisement of a child by a parent* countenanced, provided neither life nor limb is endangered by it--if so, the parent amenable--remarks. The same may be said of *masters* with regard to apprentices and pupils--remarks. The like applies also to *master and slave* —in the administration of correction the master must be guided by his discretion, but should the slave die from brutal usage the master to be held answerable.

468. *Of magistratorial flogging*—regulations regarding military flogging in the British service—remarks—a medical officer present to inspect the state of the culprit previous to the infliction of a single lash and during the progress of the flogging. Should any circumstance arise which may render it hazardous to put the sentence in execution, or, after it has commenced, to complete it, he is to interfere.

469. *The duty of the attending surgeon is,* to be aware of the state of the culprit's health, in order that he may prevent the punishment should it be likely to endanger life—caution, however, required as he may be involved in an unpleasant responsibility—During the punishment he must watch the countenance of the individual for signs of syncope or others of an unusual na-

ture—not an uncommon circumstance for the culprit to pretend that he is unable to bear the punishment, to obtain the surgeon's interference—necessary for the medical officer to guard against imposition—whilst the man calls out and shrinks, no reason to interfere—generally where every other appearance of syncope is assumed, the eye and pulsation will detect the imposture—few men exhausted under the common amount of punishment—remarks—but little danger of the surgeon's mistaking if attentive—must bear in mind that if the prisoner be able to bear the whole punishment he has no business to stop the course of justice—remarks.

470. *The wounds, in every instance, to be carefully attended to*—the antiphlogistic treatment in the first instance and simple dressings being generally all that is required—cases related.

### *Stuprum, or Rape.*

471. *Remarks*—signifies the carnal knowledge of a woman against her will—if she be under the age of ten, however, her giving consent does not obviate the criminality of the deed—the crime equally atrocious whether committed on a virgin or married woman, or one of ill fame—remarks—A male under the age of puberty incapable of committing this crime—remarks.

472. *If the complainant be of proper age* her own testimony may be sufficient for justice—a

married woman may swear that the prisoner lay with her forcibly after the manner of her husband. In adult females, reputed virgins, the evidence must be of the clearest nature--where this depends upon the female the accused sometimes escapes conviction, from inability, on her part, to make positive statements--cases related--remarks. Crime peculiarly detestable when committed on a child.

473. *Signs of the virgin state*--often fallacious--their presence in the adult cannot always be received as proofs of chastity--on the other hand, their absence cannot of itself be taken for evidence of incontinence. In mature unmarried females they are rarely found perfect--remarks--the vagina, in a healthy individual, at the age of puberty, rigid and narrow, but may become enlarged and relaxed from various innocent causes, or from disorders, &c.--remarks. The hymen sometimes found unbroken even in labour, generally, however, it is ruptured by the act of venery; but where entire, it is held evidence of virginity, and the charge of rape has fallen to the ground--cases related--remarks. Rapidity of the frænum labiorum considered likewise as a proof of virginity, or of rare indulgence in venery. State of the mammæ sometimes taken into the account, being generally firm in the healthy virgin; but this is no proof as they are frequently firm in incontinent females--remarks.

*\* Note from my accidental circumstances  
the hymen might be unaffected etc.*

The Thrusks not coagulate like blood  
that is a matter of some importance  
in Rape. 121

474. In a case of alleged rape on a full grown female no fair conclusion to be drawn from examination, unless it be made immediately after the commission of the crime--the female may be agitated and weak and there may be local marks of violence, as laceration, tumefaction, hemorrhage, or, at least, bruises and ecchymoses about the nates and neighbouring parts--If time have elapsed, these traces may have disappeared--remarks.

475. A common opinion amongst the lower classes exists that, in a case of gonorrhœa, the best cure is intercourse with an uncontaminated female--hence gonorrhœa is frequently met with along with rape, especially in young children, and hence the practice of inspecting the accused--remarks--Purulent discharges do, however, take place from other causes even in children--this to be borne in mind. *(sug. to p. 121)*

476. Women sometimes violated when in a state of insensibility from intoxication, syncope, &c. remarks.

477. The idea that forcible coition is never followed by pregnancy erroneous--In a state of natural sleep barely possible that a female can be violated--remarks.

478. A woman may be certainly also impregnated without consciousness of sexual contact--cases related.

479. Rapes have been charged against the female sex--cases related.

*The charge from the witness is very similar in all cases - hence the difficulty. The time also after an alleged rape is of great importance, for a charge does not take place from that in any order.*

480. *Laws* in Virginia, New York, Delaware, South Carolina, Connecticut, Massachusetts, Illinois, Pennsylvania, Vermont, New Hampshire, New Jersey, Missouri, &c.

481. *Differences of opinion respecting the carnal knowledge of a female*--some supposing that penetration alone is sufficient--others that penetration and emission are necessary--all agree that the latter without the former is not sufficient--discrepancies related. Discordances regarding the proofs of emission noticed--penetration generally considered *prime facie* evidence of it--remarks.

### *Sodomy,*

482. *Difficult of detection by inspection of parts*--remarks--syphilitic affection about the anus, perceptible and may lead to detection--frequency of this unnatural vice in some countries--remarks.

483. *Laws* on this subject.

## DISQUALIFICATIONS FOR THE PERFORMANCE OF SOCIAL OR CIVIL FUNCTIONS.

484. *Remarks.*

### *Moral disqualifications.*

485. *Remarks.*

### *Insanity.*

486. *Disqualifies* for every civil function--

renders an individual unfit for social liberty and not responsible for criminal acts—frequently a subject of judicial inquiry—distinguished into three states—*mania*—*melancholy* and *futility*.

### *Mania.*

487. *Denoted by ferocity* in the language and deportment of a person in the habit of conducting himself like other individuals.

488. *Symptoms*—In addition to this ferocity there is a wildness in the expression of the eyes—insensibility or resistance to cold, to sedative and other applications—frequent neglect of food—long fasting without inconvenience, &c. &c. These symptoms are continued for a longer time than they can be feigned—great watchfulness—sometimes, however, there is unusual voracity and inclination to swallow every thing that comes in the way—generally, great incoherence—one idea often usurps all the faculties, influencing the speech and conduct, and rendering the reasoning absurd—Whatever may be the predominant idea, the individual will often reason correctly from false premises—frequently the affection not apparent until the morbid notion be excited—remarks.

489. *Diagnosis*—In delirium, bodily disease and a wild and incoherent jumble of ideas—in madness no perceptible bodily disease, always some predominant idea—from idiocy, mania rea-

dily distinguishable--the idiot cannot reason, the maniac reasons falsely--the idiot has no will--the madman has, but his reason being disturbed his actions are contrary to the usages of society. In appearance the delirious is flushed with fever or shrunk with emaciation and debility--the maniac stares wildly, sometimes gaily, sometimes gloomily--the idiot is pallid and often deformed, his countenance vacant, gaping, drolling, grinning--senses often perverted and of these the ear more particularly suffers--remarks and cases.

490. *Hereditary nature of insanity fully established*--remarks--may lie dormant in one generation and break out in another--a disposition to the affection may exist but not break out unless through the influence of exciting causes.

491. *Injuries about the head* sometimes the cause of future insanity--remarks.

492. *Exciting causes*--mental uneasiness--use of spirituous liquors (intoxication being a voluntary act and itself criminal, the individual must be held responsible for all its consequences) --suppression of accustomed evacuations--remarks--not unfrequently the disease occurs in the puerperal state--remarks.

493. *Nymphomania or furor uterinus* a variety of mania.

### *Melancholia.*

494. *Remarks*--restraint here required from

the apprehension of danger to the individual's self, rather than to others—his mind dwells upon one object—if excited to conversation it is confined to his unhappy condition—remarks.

495. *Generally occurs* in those of the melancholic temperament—is characterised by general torpor and inactivity—piteous expression of countenance—can be feigned only to a certain degree—the frame resists hunger, watching and exposure as in maniacs, but seldom to so great a degree—a fixed position of the body frequently characteristic—cases related.

496. *Demonomania* or religious melancholy noticed.

497. *Melancholy most likely to be confounded with Hypochondriasis*—mania and melancholia sometimes alternate—remarks.

### *Fatuitas vel Idiotismus.*

498. *Very different from the preceding species*—commonly congenital—sometimes induced in after life—something like it in old age—very common in some countries as in the Valais in Switzerland where it is called Cretinism.

499. *Idiocy* unfits for the management of the individual's own affairs, for citizenship, &c. &c.—remarks—Idiots commonly inoffensive and where restraint is required it is generally to keep them from accidental danger.

500. *In congenital Idiocy* little danger of mistake.

501. *Exciting causes* in the course of life—intense mental application—disease—mental emotions—organic derangement of the brain, &c.

502. *Physical characteristics* well known—certain functions capable only of being exercised in a degree—commonly, want of vigour in the muscular powers and incontinence of the excretory evacuations, especially of the saliva—dirtiness of person—imperfect speech, &c. often obesity and lethargy—remarks.

### *Inferior degrees of unsound mind.*

503. *Delirium*—remarks—suicide and murder sometimes committed by the delirious—their conduct to be judged of like that of the furious maniac.

504. *Hypochondriasis* has many points of similitude to melancholy—its great characteristic is, that persons affected by it, are especially attentive to the state of their own health—generally also accompanied with dyspepsia.

505. *Both Hypochondriasis and Hysteria* liable to degenerate into insanity.

506. *Hallucinations*, illusions or waking dreams—remarks—cases related—this form of diseased mind not likely to become a subject of legal investigation—remarks.

507. *Epilepsy* apt, when long continued, to induce unsound mind—its effects should be, from time to time, noticed as it may become the subject of examination in civil cases.

508. *Intoxication*—remarks—crimes committed under this state do not excuse from punishment—habitual drunkenness frequently occasions insanity—the line between intoxication and insanity may hence become a subject of legal discussion—cases related—Law of New-York regarding habitual drunkards.

509. *Old age*—debility of mind induced by old age may render a person unfit to manage his own affairs, &c.

510. *Remarks on the numerous cases that may occur*, as to the strength of mind of individuals—every case to be judged on its own merits—remarks.

511. *The medico-legal duty of a practitioner*, in all cases of insanity, is to prove or disprove the reality of the existence of the disease—remarks. In furious mania but little danger of a medical man's giving a wrong opinion—remarks—it may be feigned, but it will be found that it cannot be so long kept up as in genuine mania—the pulse has been considered a means of discrimination, being asserted to be more frequent in insanity than in health—absurdity of this opinion pointed out—insane persons sometimes uncommonly cunning, so as to frequently deceive and throw off their guard those who watch them—this especially the case with those who determine to make away with themselves—remarks. There are some cases where insanity is very doubtful—

persons may be insane upon one point and capable of reasoning well on others in these cases some previous knowledge of the patient required--cases related.

512. *Strange cases of mental alienation* referred to.

513. *On the question of recovery* the cause or causes must be considered--where hereditary predisposition exists the hopes are slender, and when combined with epilepsy and palsy--where the cause is clear, and particularly where removable, prognosis generally favorable.

514. *Dissection* has not afforded any useful practical information--in some cases morbid appearances in the brain perceptible--in others none.

515. *Probability of recovery* in any case to be estimated by the violence of the symptoms--want or occurrence of remissions--the duration--age of the patient, &c.

516. *Remarks on legal interference* in cases of melancholy, fatuity, &c--in the case of an idiot, necessary for the practitioner to enquire, whether the fatuity had existed from birth or had been induced by some agency, in order to estimate the probability of recovery, &c.

517. *Legal definition of mental alienation--Idiot, lunatic, or non-compos mentis*--English law on this subject in civil and criminal cases--Lucid intervals examined--various opinions on this subject referred to--remarks.

518. *State of mind necessary to constitute a valid will*--none valid if made by an infant, idiot or lunatic--or by the doting or drunken.

519. *The incapacitating diseases* are lethargic and comatose affections--apoplexy--inflammation of the brain or any inflammation accompanied with delirium--the whole condition, however, as regards symptoms, conversation, actions, &c. of the individual in any case to be taken into account--legal cases related.

#### PHYSICAL DISQUALIFICATIONS.

520. *Remarks.*

##### *Disqualifications for general purposes.*

521. *Remarks on the perfect use of the senses*, as essential to citizenship--difference in a legal point of view between an individual born deaf, dumb and blind, and one who has become so.--Loss of one sense frequently occasions others to be more acute.

522. *Of the deaf and dumb*--remarks--a person born deaf and dumb competent as a witness, provided he evinces sufficient understanding--cases related. The deaf and dumb also allowed to obtain possession of their real estate, if they shew sufficient understanding--cases related--when engaged in criminal transactions, the mode of dealing with them has always been

a subject of serious consideration—cases related.

523. *Where deafness exists without dumbness, or vice versa it does not necessarily unfit the person for citizenship or legal responsibility—remarks on such cases.*

*Of morbid disqualifications.*

524. *The physician may be required to ascertain, whether an individual may be fit to serve upon a jury, to attend as a witness, or if he be competent to undertake certain offices or duties, or he may be required to report, whether a criminal be capable of undergoing hard labour, or suffering other severe punishments that may have been awarded him.*

525. *In civil cases, acute diseases should act as disqualifications to the individual—in rheumatism, asthma, epilepsy, &c. a doubt may exist whether the required exertion could do harm—the physician must judge on the particular case before him—remarks on such cases and on those of infirm health, or of predisposition to consumption, of aneurism, stone in the bladder, &c. Such individuals should be exempt from all duties not indispensable—many, who are not able to travel, may be capable of being examined at their own houses.*

526. *In criminal cases, acute diseases should retard punishment—the physician, however, in all cases must judge for himself, leaning to mer-*

ey but careful that he may not be imposed upon by feigned representations of disease.

*Disqualifications for military service.*

527. *Remarks*--Instructions to the surgeons of the British army--required to investigate minutely the state of health, whether the recruit present any mark of punishment, any rupture, or scrophulous affection--whether he have the free use of his eyes, ears and speech--have good teeth--the free motion of every joint and limb--that he has no sore leg, nor mark of old ulcer with adhesion of skin to the bone--no varicose veins nor diseased enlargement of bones or joints--that he be neither consumptive nor subject to fits--that he be not deranged or idiotic, and that he be not deformed (exceptions in times of emergency)--that he have no enlargement of the spleen, liver, &c.

528. *Tables formed by the Council of Health of the French armies* enumerated--remarks on acute and curable diseases, &c.

529. *In discharging soldiers from service* on account of physical disqualifications, most of the diseases precluding their admission considered sufficient - exceptions to this--remarks--more circumspection required in some cases than in others--individuals unfitted for one kind of military service may be yet fit for another--no curable complaints valid grounds for discharging soldiers--remarks.

503. *In granting Certificates* the surgeon must bear in mind, that he is under a moral obligation not to give exemption without sufficient grounds and he must guard against being imposed upon--French laws against a surgeon who may give a false certificate.

*Of warranty.*

531. *Remarks.*

*Disqualifications for the matrimonial state.*

532. *May be moral or physical*--the former but rarely a subject of judicial inquiry--remarks on physical disqualifications.

*Impotence.*

533. *This is incapacity for the act of coition*--this plea has been urged by individuals accused of committing rape, as well as to contest the legitimacy of children.

534. *Impotence may exist in the male or the female*--An individual without penis or testes of course impotent.

535. *Of wounds*--remarks--if a woman had been deceived into marriage with a eunuch, it would be a legal plea for its dissolution.

536. *The testes not having descended* by no means a proof of want of procreative powers--cases connected with this subject related--remarks.

537. *A person with one testicle can certainly procreate—cases related.*

538. *Impotence may be connected with the state of the penis—e. g. the organ may be wanting—and the disqualification, of course, complete—remarks—the organ not likely to be complained of as being too small—but it may be too large and endanger the health of the female—these, however, rare cases. Impotence may be occasioned by malformation of the penis—remarks—the urethra may open so far back that the semen cannot enter the vagina—remarks—where the orifice is in that portion of the penis that entered the vagina impregnation may take place.*

539. *Certain diseases—as scirrhus at the neck of the bladder, of the prostate gland or other cause impeding the exit of the semen at the time of coition, may occasion impotence.*

540. *Where the parts are apparently perfect, impotence may be occasioned from inability for erection—remarks—a temporary impotence may be occasioned by mental emotions—a man may be impotent with one woman and not with another—remarks—cases related.*

541. *Mode of verifying or disproving a charge of impotence by the Congres, referred to.*

542. *Cases of alleged impotence rare—cases related.*

543. *Impotence may be ascribed to the female—this can only occur from incapacity of the vagi-*

na to admit the penis—from unnatural closure or an unusually strong hymen—the parietes of the vagina may adhere either from birth or from neglected inflammation—the organ may also be naturally so contracted as to prevent access—Now and then the vagina opens preternaturally, with the rectum for instance or vice versa.

### *Sterility.*

544. *Means a capacity of coition without the power of procreation—and consequently exists only in the female as a judiciary question—remarks.*

545. *Sterility of two kinds, constitutional and morbid—remarks on this subject—the plea of constitutional sterility but rarely admissible and not to be affected by medical inquiry.*

546. *Morbid sterility may be curable or incurable—of certain deviations from the natural formation of parts—occlusion of the os uteri—imperviousness of the fallopian tubes—diseases of the organs, &c. as causes of sterility—remarks.*

547. *The practitioner may be consulted with a view to the propriety of matrimony as to hereditary diseases or constitutional defects and peculiarities—in such case to act with judgment—remarks—Infirmities contracted after marriage can scarcely ever be a plea for divorce.*

548. *With respect to age the practitioner may be consulted regarding the probability of future*

progeny—remarks—if the female have ceased to menstruate the case is hopeless as to the male if he be not really impotent impregnation may take place.

549. *Laws of the various States* on this subject.

### PRETENDED DISQUALIFICATIONS.

550. *Unfounded allegations* of disqualifications sometimes made against individuals—but more commonly they are pretended, for various purposes, by individuals themselves.

551. *Of pretended insanity*—remarks.

552. *Chief objects of imposition*—exemption from labour or punishment—to receive alms, &c.—our object at present to consider disqualifications which have no real existence—remarks.

553. *Diseases which may be feigned*, extremely numerous—some however more frequently simulated than others—remarks.

554. *Diseases pretended may be external or internal* the latter of course more difficult of detection than the former.

555. *Means of detection*—Be careful to conceal suspicion—encourage the patient to talk of his complaint to describe its symptoms, seat, cause, &c. the effect of remedies, &c. When, if the disease be feigned, he will be incongruous, unless he has been tutored—remarks—cases of deception related—remarks.

556. *One of the most common of feigned diseases is Epilepsy*—remarks— one symptom of Epilepsy cannot be feigned, viz: the incontractility of the pupil when exposed to light—foaming at the mouth has been produced by a piece of soap contained in it. *Hysteria, syncope, paralysis, catalepsy, shaking--palsey, vomiting at pleasure, total insensibility, &c.* sometimes also assumed—cases related.

557. *Sudden and violent applications* generally successful in such cases—as affusions of cold water—the actual cautery--boiling water let fall upon some part of the body, &c.

558. *Hæmoptysis* is often feigned—the appearance of the blood however quite characteristic—that from the lungs is frothy and light, coming up by coughing . the mouth and fauces to be carefully inspected, &c.—instances related of Bullock's blood and other red substances having been swallowed to feign *Hæmatemesis*—the complaint will of course cease when the supply is prevented.

559. *Blindness* often affected—cases related.

560. *Deafness or dumbness* may be feigned. To detect it, make matters the subject of conversation which interest the individual and watch its effect on the countenance and pulse—remarks on wilful mutes—remarks—cases related.

561. *Other feigned diseases referred to*, as ulcers, ruptures, fractures, &c.

562. *Notorious cases of deception related.*

### MISCELLANEOUS QUESTIONS.

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#### *Utero- Gestation.*

563. *Has many relations*—may be pretended—may be a real disqualification, and legitimacy of birth often dependent upon the settlement of its occurrence—its termination and consequences may form also considerations of a Forensic nature.

#### *Phenomena of Pregnancy.*

564. *Remarks.*

565. *Uterus, &c. described.*

566. *Physiological remarks and cases*—physiology of conception—disappearance of the catamenia the first important sign of pregnancy—catamenia however often withheld by other causes, by which, disorders resembling certain signs of pregnancy are induced—remarks on the disappearance of the catamenia—no certainty to be obtained until about the end of the 4th month—remarks—pregnancy, in the latter months, also liable to be confounded with diseases as with dropsy, enlarged ovaria, &c. Motion of the child may be confounded with flatus in the intestines, pulsations in the large vessels, &c.—dis-

coloration of areola round the nipple a strong sign of pregnancy—towards the termination, milk appears in the breast--this however not certain--instances of virgins, old women and even of men having had milk in the mammae verification of pregnancy does not depend on any one sign, but on the existence of many. Mode of examination *per vaginam.*

567. *The following catenation of symptoms* will rarely deceive, regarding the existence of pregnancy. Suppression of the catamenia- the abdomen gradually enlarging--the breast increasing in size—the areola round the nipple becoming dark coloured—the motion of the fœtus being perceptible. and the neck of the uterus being found to be diminishing in length and the orifice thin.

### *Of Delivery.*

568. *A question may arise,* whether Delivery have taken place? If called immediately no mistake can be made. By placing the hand upon the abdomen we will find that some extensive evacuation has occurred. It will be lax and enlarged and flabby, with a fluid called the lochial discharge issuing from it--remarks--a female recently delivered also generally weak, pale, and languid. The longer the time that may have elapsed since delivery, the greater the difficulty in detecting it--general remarks--on white spots

on the abdomen, lacerations or cicatrices about the perinæum—on corpora lutea, &c.

569. *Of the duration of pregnancy*—nine calendar months the usual period for human pregnancy—in some cases it has exceeded this—in many others it falls short of it—it has been admitted that a woman may carry a child to the 11th month.—remarks. English law on this subject.

570. *Real excess over nine months by no means common* and never great—remarks—excess to be explained by erroneous reckoning on the part of the female—remarks.

571. *A female must attain a certain state of maturity* before she can conceive—in other words, she must have arrived at puberty—remarks on the signs of puberty—earlier in tropical than northern climates, &c. Exceptions noticed—women cease bearing children when they verge towards the 50th year—rare cases of remote fecundity related.

572. *Questions relating to paternity and affiliation* noticed—a woman may marry again immediately after the death of her first husband, she may be delivered of a child at the expiration of ten months from the death of the first husband, and a question may arise as to the paternity of the infant—cases related—English law on the subject, &c.

### *Sexual Ambiguity.*

573. *The reality of hermaphrodites totally fa-*

*bulous*—sometimes, however, certain sexual peculiarities met with, which may require the practitioner to verify the sex to which the individual may belong—remarks.

574. *Generally, dubious cases* are occasioned either by a preternatural enlargement of the clitoris in the female or a division in the scrotum of the male, giving some appearance of labia pudendi—remarks—cases related. Where proper examination has been made, such persons have been always found to belong decidedly either to one sex or the other—cases related.

575. *Hermaphrodites (so called) are monsters*—monsters, if they are capable of action as individuals, have the same rights as other persons—remarks—Common Law of England on the subject of monsters.

### *Personal Identity.*

576. *Many important events have depended upon personal identity*—Impostures have been maintained—innocent persons arraigned, &c. &c. A medical man no better judge of such cases in general than others—curious cases of change of appearance in the same individual noticed—cases related.

577. *Most common source of difficulty as to identification* is in dead bodies, especially where the death has been violent and still more when putrefaction has been going on—remarks—cases related.

578. *Identification has been attempted from the*

*mere skeleton*, but here the aid of moral evidence is indispensable —cases related.

*Survivorship, and Ensurance of lives.*

579. *Physiology can rarely afford more than presumptive grounds for conclusion on the question of survival.* French Law on this subject —remarks.

580. *Where several individuals have been killed by one common accident,* from the parts involved and the extent of the injury it may be concluded that the continuance of life may have been impossible in one person, but not so in another, where the injury has been of a different character—examples related.

581. *If two persons have been found dead from drowning* we may surmise that death has occurred in one individual sooner than in another, from the knowledge that one was a swimmer and the other not—from the appearances in the lungs after death, &c. &c.

582. *When death has occurred from noxious inhalation,* the relative proximity of each to the *foyer* of the noxious air, &c. must be taken into account.

583. *When from suspension*—the position and tightness of the cord, suspension being more or less complete, marks of struggling, injury to spinal marrow, &c., must be estimated in the question of survivorship—cases related.

584. *Persons have perished together from hun-*

*ger*—children in such cases generally more affected than young persons—these than the middle aged.

585. *The English Law* seems to have no provision on the subject of survivorship except so far as the civil law is incorporated with it—cases related.

586. *A mother and child dying together* in parturition, is the most common cause of such questions—frequently, after the death of the mother, a child has been found extruded—survivorship may here be difficult to decide.

587. *Cases elucidating this subject* related.

588. *Of tenant by courtesy* according to the Law of England—cases related.

589. *Insurance of lives*—probabilities of life depend upon age, constitution, climate, health, profession or pursuits, and habits of the individual insured—on all these the physician has to form an opinion—remarks.

590. *Law on the subject of Insurance*—cases related.

### *Hereditary Peculiarities.*

591. *Remarks*—cases related—remarks on hereditary diseases in general.

592. *Some hereditary diseases may unfit the individual for certain situations* and the disposition to these and others may lead them or their friends to consult with medical men, before entering the married state, and before following certain professions—repairing to certain climates, &c. or as to diet, regimen, &c.—remarks.

### *Of Medical Evidence.*

593. *General remarks.*

nd p. 99) Lake says that persons have said  
that crying may not take place, owing  
to its being dumb - not so, it will  
have its natural cry.  
Motion of the lips has been looked

upon as a proof of vitality - not so, a  
man has its peculiar stimulus; &  
the motion of the lips may have been  
owing to the contractility still re-  
maining in the system after death (but  
the child's heart have been also  
to give this contractility, which  
may have been in utero)

Dr. D. called the contractility of  
the muscles by galvanism after  
death to bear on the subject.

Fid. Galvani vi. censuit 2 vol. of  
Langsdorff Physiology.

Id Dr D. says that the true rationale  
of asphyxia is this - the blood does  
not become arterialized, the pul-  
monary vessels have not their excita-  
bility elicited; & then for this is  
a stasis taking place, owing to  
the blood not passing on to the pul-  
monary veins (radii of 1.) He finds then the  
right side of the heart is full of blood & the  
left empty - Consequently (if  
you can make the Ugo) death  
must take place.







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